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E.H.B.

TRANSACTIONS

OF THE

MEDICAL ASSOCIATION

OF THE

STATE OF MISSOURI,

AT ITS

FORTY-FIFTH ANNUAL SESSION,

HELD AT

St. Joseph, Mo., May 20th, 21st and 22d, 1902.

ST. LOUIS:
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THOMPSON, W. S	Howard County	Armstrong.
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WIENER, MEYER	St. Louis	St. Louis.
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YANCEY, E. F	Pettis County	Sedalia.

A total of 234 members.

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PARK, ROSWELL, Buffalo, N. Y.

CONSTITUTION AND BY-LAWS OF THE MISSOURI STATE MEDICAL ASSOCIATION.

CONSTITUTION.

ARTICLE I. — NAME OF THE ASSOCIATION.

The name and title of the organization shall be The Missouri State Medical Association.

ARTICLE II. — PURPOSES OF THE ASSOCIATION.

The purpose of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Missouri, and to unite with similar Associations in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of State medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III. — COMPOSITION OF THE ASSOCIATION.

SECTION 1. This Association shall consist of Active Members and Honorary Members.

SEC. 2. Active Members of this Association shall consist of such members of local, county or district medical societies in affiliation with the "Missouri State Medical Association," whose names shall have been certified to by the President and Secretary of these respective societies, and for each of whom the fee of two dollars shall have been forwarded by their Secretary to the Treasurer of this Association prior to the date of the annual meeting.

SEC. 3. Honorary Members of this Association shall consist of such distinguished men of the regular profession, not resident of the State, as shall be elected by unanimous vote of the Association.

SEC. 4. Both Active and Honorary Members shall be entitled to equal privileges in the discussions at the annual meetings of the Association.

Honorary members, however, shall not be eligible to hold office nor be allowed to vote, nor be expected to contribute to the funds of the Association, nor receive free a copy of its transactions.

SEC. 5. No Active Member shall take part in the deliberations of this Association until he shall have filed with the Judicial Council hereinafter provided his credentials, entering his name, address and the society of which he is a member.

ARTICLE IV. — OFFICERS.

The officers of this Association shall be: A President, five Vice-Presidents, a Recording Secretary, an Associate Recording Secretary, and a Treasurer.

ARTICLE V. — STANDING COMMITTEES.

1. A Judicial Council which shall consist of one member from each Congressional District, one-third of whom shall be appointed each year by the President and shall hold office for a term of three years. 2. A Committee of Arrangements. 3. A Committee on Scientific Communications. 4. A Committee on Medical Education. 5. A Committee on Publication. 6. A Committee on Necrology.

BY-LAWS.

ARTICLE I. — ELECTIONS.

SECTION 1. The election of officers of the Association shall occur annually, excepting the Recording Secretary who shall hold office for a period of five years unless sooner removed for cause by a vote of the Association. The election shall be by ballot, a majority electing.

SEC. 2. All officers shall be elected at the morning session on the last day of the annual meeting, and they shall be inducted into office immediately before the final adjournment.

SEC. 3. The election of President shall be by ballot in open session.

SEC. 4. All other officers shall be elected after nominations have been presented by the Committee on Nominations.

SEC. 5. The Committee on Nominations shall consist of five active members, and shall be appointed by the President during the morning session of the second day of the annual meeting of the Association.

ARTICLE II. — DUTIES OF OFFICERS.

SECTION 1. The President shall preside at all meetings, preserve order, and perform all other duties that custom and parliamentary usage may require; he shall countersign all orders on the Treasurer, shall appoint all standing committees, and shall deliver an annual address to the Association before retiring from office.

SEC. 2. The Vice-Presidents shall, when called upon, assist the President in the performance of his duties, and shall at the request of the President or during his absence perform the duties of this officer.

SEC. 3. The Recording Secretary shall keep a full and accurate record of all the proceedings of the Association, shall serve as a member of the Committee on Publications, shall preserve the archives and the unpublished transactions of the Association, and shall after the final adjournment of the Association furnish a complete list of all active members together with their Post Office addresses to the Secretary of the American Medical Association.

SEC. 4. The Associate Recording Secretary shall perform such duties as may be required in assisting the Recording Secretary and shall in the absence of this officer fulfill the duties of this office; he shall keep a correct roster of all active members certified to him by the President and Secretary of the local, county or district medical societies entitled to membership in this Association, and shall furnish a copy of the same to the Secretary, to the Judicial Council and to the Committee on Publication for insertion in the annual transactions.

SEC. 5. The Treasurer shall collect and have immediate charge and management of the funds of the Association and shall hold these subject to its disposal. He shall at each annual meeting present a written report setting forth the amount of moneys received and disbursed and for what purposes. At the expiration of his term or on vacating his office he shall deliver to his successor all moneys and all property belonging to the Association for which he is responsible. He shall file a bond with the Recording Secretary on or before assuming his duties equal to the amount of the liabilities of his office, indorsed by two sureties approved by the President.

ARTICLE III. — MEETINGS OF THE ASSOCIATION.

SECTION 1. The regular meetings of this Association shall be held annually at any place within the State of Missouri that may have been selected by the Association, and shall convene on the third Tuesday in May, changeable, however, at the option of the President and Recording Secretary when such time conflicts with the date of the meeting of the American Medical Association.

SEC. 2. The regular meetings of the Association may remain in session three days, if a sufficiency of business demands it.

ARTICLE IV. — AFFILIATED SOCIETIES.

SECTION 1. Any local, county or district medical society may become affiliated with the State Association, and its members enjoy the rights and privileges of Active Members of the Association, if the society thus seeking affiliation exacts of its members adherence to the Code of Ethics of the American Medical Association, and transmit to the Treasurer of this Association each year a list of its members and their addresses together with two dollars dues for each member.

SEC. 2. Any local, county or district medical society desiring affiliation with this Association must submit to the Judicial Council a copy of their Constitution and By-Laws together with a complete roster of its members.

ARTICLE V. — DUTIES OF STANDING COMMITTEES.

SECTION 1. The Judicial Council shall pass upon all applicants for affiliation and make a report to the Association during the afternoon session of the first day of the meeting, and shall report from time to time during the business sessions of the Association; they shall pass upon all credentials presented by Active Members. All questions of personal character and Ethics including protest and complaints shall be referred to the Judicial Council without discussion. The Committee shall organize and choose a Chairman and Secretary from its members; shall keep a complete record of its proceedings and shall report its findings to the Association from time to time.

SEC. 2. The Committee on Arrangement, which shall consist of three members, shall provide suitable accommodations for the annual meeting and shall take all measures to secure the attendance of members by publication or otherwise.

SEC. 3. The Committee on Scientific Communications, consisting of three members, shall have charge of all scientific communications to the Association. It shall be their duty to receive from members the titles of all such papers as may be proposed to the Association and to take such other measures as may seem to them best adapted to secure interesting and original communications upon scientific subjects connected with medicine. Such communications must be read before the Association in full or in abstract before being presented to the Committee on Publication. They shall also arrange the order in which such communications shall be presented to the Association.

SEC. 4. The Committee on Medical Education consisting of three members shall prepare an annual report on the general status of Medical Education in the State of Missouri, with such other matter as they may deem worthy of special consideration in reference to medical education and the reputable standing of the profession.

SEC. 5. The Committee on Publication shall consist of three members, of which the Recording Secretary shall be one. It shall examine all papers that may be referred to it by the Association, and shall present a report during the meeting at which said papers are read stating what papers in the opinion of the Committee shall be published in the Association's transactions. The Committee shall furthermore prepare for the Press and publish and distribute such of the proceedings and memoirs of the Association as may be ordered published.

SEC. 6. The Committee on Necrology shall consist of one member for each Congressional District in the State. They shall remain members of said Committee for a period of five years. If a member of this Association die, it shall be the duty of the presiding officer of the nearest medical society in the district in which he resided to notify the member of the Committee on

Necrology who shall prepare a suitable biographical sketch of the deceased member and shall transmit the same to the presiding officer at the annual meeting. It shall be the duty of the Committee on Publications to print such biography in the annual transactions.

Article VI. — Discipline of Members.

All cases of violation of the Code of Ethics adopted by the Association shall be presented to the Judicial Council who shall investigate the same and report to the Association in open session. A vote of two-thirds of the Active Members of the Association in attendance at the meeting shall be required to expel the offending individual or affiliated society.

Article VII. — Funds and Appropriations.

Section 1. The funds of the Association shall be raised by an assessment on the Active Membership of the affiliated societies of two dollars for each member.

Sec. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings, for publishing the proceedings, memoirs and transactions of the Association; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their annual reports; for the encouragement of scientific investigation by prizes and awards of merit; and for such other purposes as the Association may from time to time direct.

Article VIII. — Code of Ethics.

The Code of Ethics of the American Medical Association is hereby adopted by this Association and shall have the full force and effect of any article of the Constitution.

Article IX. — Order of Business.

The order of business for each meeting shall be arranged by the Committee on Arrangements and the Committee on Scientific Communications; provided that the first hour of the morning sessions of each day shall be devoted to the transaction of the miscellaneous business of the Association.

Article X.

No paper shall be received by the Missouri State Medical Association or be published in its transactions unless such paper is ready to be placed in the hands of the Secretary immediately after the reading of the same.

Article XI. — Adendments.

No alteration or amendment in the By-Laws shall be made except at the regular meeting and by two-thirds vote of the members present.

Jabez N. Jackson,
F. J. Lutz,
D. C. Gore,
C. H. Wallace,
J. E. Teft.

BOSTON MEDICAL
SEP 11 1902
LIBRARY.

MINUTES OF THE PROCEEDINGS OF THE FORTY-FIFTH ANNUAL MEETING OF THE MEDICAL ASSOCIATION OF MISSOURI.

HELD IN THE AUDITORIUM OF THE YOUNG MEN'S CHRSTIAN ASSOCIATION, ST. JOSEPH, MO., MAY 20, 21, AND 22, 1902.

FIRST DAY — MORNING SESSION.

The forty-fifth annual meeting was called to order by Dr. C. H. Wallace, Chairman of the Committee on Arrangements. He introduced the Rev. Dr. W. R. Dobyns of the First Presbyterian Church, who delivered the invocation.

Dr. Wallace then introduced Mayor Borden, who delivered an address of welcome on behalf of the City of St. Joseph.

Response to the address of welcome on behalf of the Association was made by Dr. W. G. Moore, of St. Louis.

The President, Dr. J. D. Griffith, of Kansas City, was then introduced. He made a few remarks and established rulings governing the workings of this body.

On motion the reading of the minutes of the last meeting was dispensed with.

Dr. F. J. Lutz, of St. Louis, Chairman of the Publication Committee, made the following report, which was received and adopted: —

REPORT OF THE PUBLICATION COMMITTEE.

To the Missouri State Medical Association:

GENTLEMEN: The Committee on Publication hereby submits the following report: —

The papers read before this Association at its last meeting as well as the discussions which were elicited came into the hands of your Committee promptly and were as promptly transmitted to the printer, so that two months after the adjournment of the Association the Transactions were ready for distribution.

The two firms which competed for our printing were the A. R. Flemming Printing Co. and the Nixon-Jones Printing Co.; to the latter was awarded the printing on the following basis: —

"Material, style, etc., to be as transactions of 1900; pages therein, 300, more or less. Paper used for same not inferior in quality and weight to 25 x 38, 70 lbs. Monarch toned (which is as Transactions of 1900).

All pages set in small pica type (this is as the larger type used in 1900 in the Papers). Paper, press work and setting type: —

If 300 copies are ordered, per page	85 cts.
If 400 " " " " "	90 "
If 500 " " " " "	95 "

All pages set in brevier (this is the smaller type, such as Discussions), for paper, presswork and setting type: —

If 300 copies ordered, per page	$1 35
If 400 " " " "	1 45
If 500 " " " "	1 55

Binding in cloth, as 1900 Report, per copy, 18 cts.; binding in paper, per copy, 5 cts. Corrections which are changes from the copy furnished the printer, not corrections of our printer's mistakes, will be charged for, if any, at a rate of 50 cts. per hour.

The printing of the Transactions and the postage for their distribution amounted to $402.49. Of this amount $364.15 was for printing, typesetting and binding and $38.34 for postage. There were 300 volumes of the Transactions published, making the cost per volume, in round figures, $1.35.

The Committee wishes also to report that the unbound copies of the Transactions which the Association ordered divided between the libraries of Kansas City and St. Louis for purposes of exchange with other Associations, were delivered to the librarians of these two libraries.

Comparatively few complaints have come from members to whom the volumes were not sent. In each instance it was found that the name of the complaining member was not on the list of those transmitted to the Committee by the proper officers for publication in the Transactions.

Respectfully submitted by

F. J. LUTZ,
W. G. MOORE,
B. C. HYDE,
Committee.

The Committee on Credentials made a partial report.

The Recording Secretary read his report as follows: —

MR. PRESIDENT AND GENTLEMEN: The subject of reorganization will come before this body for especial consideration and discussion. On this subject I have had an interesting correspondence with Dr. George H. Simmons, the Secretary of the American Medical Association, whose zeal has already inspired him to endeavor to organize county societies in the State. It will require a united effort, time and money to perfect the plan.

It is my desire at this time to offer a brief statement that will follow the trend toward the acceptance of the plan as proposed by the National Committee, which plan, with some minor changes, has been adopted by the States of California and Tennessee, and it is hoped that it will be adopted by all.

As Secretary, perhaps better than in any other position, one can see the need of better organization of the medical profession of Missouri. The spirit of organization is in the air, and if we are to have a compact organization we can no longer ignore the material and social interests of the members of the profession. Missouri should have a medical society in each of the 114 counties. At present there are 43 county or local societies, some of them dormant. Of the district societies there are 13, some of which cover territory already represented by county societies. The 43 county and 13 district societies have a membership of about 2,000. The membership of the State society seldom numbers more than 275. The last meeting at Jefferson City was considered a good one, at least in point of attendance, and the number enrolled was 269. A part of the reorganization plan is to make membership in the State and National Associations dependent on membership in the county societies. Should Missouri adopt the plan, the membership in the State society, without the organization of new county societies, would be increased from 269 to 2,000. The advantages to be derived from this large membership in the State society are so many and obvious that it will be unnecessary to more than hint at two or three. The most important of these will be an increased total revenue, at a small cost to the individual. The lack of money in the past has prevented the undertaking of many important measures. For this reason we had to decline to act on the urgent appeals of Dr. Simmons, secretary of the American Medical Association, during the past year, to try to organize new county societies in the State. To illustrate this point of increased revenue, we refer to the membership of our own State, which at present, providing all pay their dues, would result in an income of $1,176. Under the new order, the same annual assessment, $4.00, would give an income of $8,000, much more than would be necessary after the first year or two. Thus the annual dues could be reduced. New county societies would be organized when the benefits of membership therein were realized. These would also exercise a salutary censorship, for there are now members of the American

Medical Association who could not obtain membership in that body if they depended on credentials from their local societies. To quote from the Journal of the American Medical Association, which has been doing missionary work along the line of reorganization: "The larger the membership, the smaller is the proportionate expense. The financial outlay of the State society, of course, varies with the work done. It will not be an unfair statement to make that at least three fourths of them have been doing nothing in the past except to hold an annual meeting, principally devoted to scientific work, and hence the only expense has been that which was connected with the annual meetings, that is, the Secretary's salary, the printing and issuing of programs and transactions. The former varies from nothing up to two or three hundred dollars. The increase in membership would increase the work of the secretary, but not proportionately. The printing and issuing of programs is a small item, to be sure, but this would be increased but slightly with the increased membership. The publication of the annual transactions is always the greatest item of expense. It is well known that the greatest expense of producing a book is that which pertains to the first copy. The type-setting, putting the matter in the forms, the "make-ready," and getting the presses started constitute the greatest outlay. When the presses are running, the additional thousand or ten thousand copies adds very little to the cost of the press-work. The plain white paper is a small item for each book, and the larger the number of copies the less proportionate cost of binding. If the annual volume of transactions could be substituted by a monthly journal, a most excellent thing to do for many reasons, the reduction in cost to each individual by an enlarged circulation would be very great. Referring to Illinois, the *Illinois Medical Journal*, owned and published by the State society, would almost quadruple its circulation. The cost of getting out 4,000 copies of that journal would be little more than that of 1,000 copies, the added expense being simply the added cost of the white paper, an infinitesimal item for extra press-work and mailing. The good resulting through reaching an increased number at but a slight increase in expense both as this applies to the annual transactions in book form and in a monthly journal, would be very great, without mentioning the very important fact that as regards the journal proposition as an advertising medium it would be a producer rather than a user of funds.

It will be urged that we are taking it for granted that all who now belong to subordinate societies will willingly stay in these bodies and thus become members of the State societies and assume the financial responsibilities that such membership carries. We certainly are taking this for granted, because we recognize as a fact that physicians are endowed with business sense, in spite of the statement so often made to the contrary. All will willingly give one, two, three, or even five dollars annually for the privilege of being a member of the regular organization providing they get value received for their investment. As business methods are expected to be adopted in the management of the

regular organization when this is once effected and as decided benefits of a practical nature will result from membership, there will be no hesitancy on the part of members of regular societies in paying the small annual assessment that will be required. Of course if no greater advantage follows membership in the State society in the future than has followed it in the past, there will be a large proportion who will object to this enforced membership. For what has it been in the past? The average attendance at the majority of our State meetings is less than one-third of the total membership. What advantage accrues to the two-thirds who do not attend — whether they cannot or will not does not matter — the annual meeting? What do they get for the $2 to $5 they pay each year? 1. A copy of the annual transactions, which contains papers that, if they are of value, are published in the medical journals, a book that is usually thrown on one side and soon covered with dust, for the reason that it is of little interest except to those whose papers or discussions appear in its pages. 2. A satisfaction that one is helping in a good cause; and 3, the honor of being a member. The two latter reasons cannot be considered from a business point of view. To secure membership in a medical organization value received should be given for the annual dues. Physicians are business men in some respects at least. It is not necessary at this time to refer to what shall constitute value received; we are taking it for granted when thoroughly reorganized we shall enter on a new era in medical society management, in which business methods will be adopted.

An analysis of the reorganization plan shows the American Medical Association requests the following: —

(1) The federation of all the State societies in the American Medical Association.

(2) That all associations adopt a uniform plan of organization as regards certain fundamental principles.

(3) That each State association have two district branches, legislative and scientific.

(4) That the legislative branch shall be as small as is compatible with representation from all county societies in the State or territory, and to be composed of delegates elected by the county or district societies.

(5) That the scientific branch be composed of and open to all members of county or district societies, or, as stated in the resolutions: "membership in the county or district society shall constitute membership in the respective State societies without further dues, and no one can be admitted to membership in the State society except through county or regular district societies."

It is apropos at this time to quote from the recent letter of Dr. Wyeth, the President of the American Medical Association: —

"The necessity for a thorough organization of the medical profession was never more urgent than at the present moment, nor has the appreciation of this necessity been more keenly felt than at this time.

"The American Medical Association, which will hold its fifty-third annual

session at Saratoga on June 10, 1902, being the only national representative association of the medical profession in the United States, is entitled to and claims the earnest support of every medical practitioner who has at heart the highest and best interests of the profession. An organized profession represented in this great central body with affiliated and influential State and territorial associations extending through the subdivisions into all the districts or counties, is the only real guarantee of the protection of the public health and of the medical profession. The enactment and enforcement of rigid medical laws; the establishment of reciprocity or interstate comity by which a uniform standard of requirements for the practice of medicine in the various States, which without any sacrifice of the very highest requirements would permit a physician having gone before a competent board in one State, to practice in another without being subjected to a second examination; the establishment of a national department of public health; the support of the medical staff of the United States Army in their efforts to maintain their rights; to prevent unjust restrictions upon animal experimentations which has proved to be one of the most important methods of research and of the most lasting benefit to humanity, can be accomplished in no other way than by thorough organization of the profession in the American Medical Association."

Respectfully submitted,

B. C. HYDE.

On motion it was received and referred to the Committee on Reorganization.

The Corresponding Secretary made the following report: —

REPORT OF THE CORRESPONDING SECRETARY.

Mr. President and Members of the Medical Association of Missouri:

I have the honor to make the following report from the office of Corresponding Secretary. Upon taking up the duties of this office, I found myself in the unique position of having been elected to an office, the duties of which were not defined by our Constitution and By-Laws. I have, therefore, endeavored to offer such assistance as lay within my power to the President and the Chairman of the Committee on Scientific Communications.

My first duty, I believe, was to inform the members of the various committees of their appointment; the next work undertaken was the securing of names of all the county and district societies in the State. I found upon corresponding with the various secretaries that we had about forty-four societies in the State of Missouri, twenty-nine of these responded to my letters and sent me a list of members. From fifteen no response was received. I found in the twenty-nine societies a membership of seventeen hundred, and this list furnished the material for the work done in the interest of the Program Committee, and the circular furnished by Dr. Fryer was mailed to all members of the State and District Societies.

The next duty was the printing and distribution of the program, under the supervision of Dr. Fryer. Three thousand copies were issued, twenty-five hundred of which we mailed throughout the State.

Arrangements were made with the Western Passenger Association for a rate of one and one-third fare for the round trip from all parts in the State, I made an earnest effort to secure a one-fare rate, but could not accomplish it, our average attendance being too small, in the opinion of the Association, to grant this request.

Following is the recapitulation of the work of this office:—

Number of letters written	374
Number of circulars mailed for Committee on Scientific Communications	1,767
Number of programs sent out	2,800
Number of County and District Societies in the State from whom replies were received	29
Number of societies from whom no reply was received	15
Total number of societies in the State	44
Total membership in the 29 societies heard from	1,700

The expenses of this office have been as follows:—

Printing stationery, as per bill attached (exclusive of programs)	$28.00
Amount advanced for service of joint agent for Passenger Assn	11.00
2,800 one cent stamps for sending out programs	28.00
1,767 one cent stamps for sending out circulars for Dr. Fryer	17.67
374 two cent stamps for correspondence	7.48
Total	$87.15

All of which is respectfully submitted by

CHAS. WOOD FASSETT,
Corresponding Secretary.

The report of the Corresponding Secretary was received and adopted and, on motion, a warrant was drawn on the Treasurer for the expenses of the office.

Dr. B. E. Fryer, of Kansas City, made the report for the Committee on Scientific Communications.

The President appointed the following gentlemen the Committee on Nominations: W. G. Moore, of St. Louis; C. H. Wallace, of St. Joseph; J. H. Thompson, of Kansas City; Dr. L. I. Mathews, of Joplin; and W. J. Ferguson, of Sedalia.

On motion adjourned to two o'clock.

FIRST DAY—AFTERNOON SESSION.

The meeting was called to order at two o'clock by the President.

Dr. J. Rule Fritts, of Mexico, offered the following resolution: —

Resolved, That this Association objects to room furnished the Antinarcotin Sanitarium of St. Louis as unprofessional and non-ethical.

On motion the resolution was referred to the Committee on Ethics.

Dr. J. D. Brummall, of Salisbury, and Dr. D. C. Gore, of Marshall, were appointed to fill vacancies on the Committee on Ethics.

The Committee on Credentials asked for instruction as to the disposition of the following applicants for membership, namely: J. J. Bazan, J. M. Barger, and Henry Temple.

In explanation of the request the Chairman of the Committee stated that Dr. Bazan was not a member of any society but a resident of St. Joseph and, being a recent graduate, said he had not had time to join any society; that Dr. Barger attended the meeting from Darlington where there was neither a county or district society and was, therefore, unable to bring credentials; that Dr. Temple was a resident of Kansas but desired to become a member of this Association.

Dr. U. S. Wright moved that the gentlemen be admitted as members by invitation.

Seconded.

Dr. Lutz moved to substitute the following motion: That Dr. J. N. Barger, in whose district there is no society, be

admitted on the recommendation of two members of this Association, and that the other two gentlemen be not admitted.

Seconded and carried.

Dr. C. H. Wallace moved that Dr. Fred Essig, of Spokane, Wash., be elected an honorary member of the Association. Seconded and carried.

The Treasurer read his report as follows:—

TREASURER'S ACCOUNT OF THE MEDICAL ASSOCIATION OF MISSOURI.

1901. Receipts.		1901. Disbursements.	
May 23. To Amt. Brt. Frd..	$ 41.61	May 23. Pd. C. S. C. E. Lanphear.....	$ 75.00
" 23. Cash d from M...	1,051.10	May 23. Two telegrams....	.70
" 28. " " " " ...	4.00	" 23. C. Com. on Arr. R. E. Y.....	8.50
" 30. " " " " ...	5.10	May 24. Nixon-Jones Printing Co.....	276.00
1902.		July 8. E. J. Goodin, Sten.	100.00
Feb. 26. Cash d from M...	4.00	Aug. 26. Nixon-Jones Printing Co.....	402.49
	$1,105.81	Sep. 25. Bird Fletcher Printing Co.....	3.25
		1902.	
		Mar. 22. Dismukes & Sons Printing Co.....	3.00
		May 19. Balance Amt. Frwd	236.87
			$1,105.81

J. F. WELCH.

On motion the report was referred to the Auditing Committee.

Dr. C. H. Wallace, of St. Joseph, read the report on the Progress of Gynecology.

Dr. O. Beverly Campbell, of St. Joseph, read a paper entitled "A Plea for the Conservation of the Uterus in Pelvic Inflammation."

Dr. H. E. Pearse, of Kansas City, read a paper entitled: "Methods of Control of Hemorrhage in the Removal of Pelvic Tumors."

These papers were discussed by Drs. W. B. Dorsett, of St. Louis; Knight, of Perryville; H. C. Crowell, of Kansas City; Jacob Geiger, of St. Joseph; A. H. Cordier, of Kansas City; Lester Hall, of Kansas City; J. C. Morfit, St. Louis; Dr. Lanham, of St. Joseph; and Wallace, Campbell and Pearse in closing.

Dr. R. T. Sloan, of Kansas City, read the report of the Committee on Progress of Medicine.

Dr. Chas. G. Geiger, of St. Joseph, read a paper entitled: "Cellulitis."

Dr. C. A. Mitchell, of Blythedale, read a paper entitled: "Senile Degeneration."

Dr. C. W. Watts, of Fayette, read a paper entitled: "Auto-Infection; Auto-phagism and Auto-intoxication."

These papers were discussed by Drs. W. N. Keener, of Jamesport; Pearse, of Kansas City; Leonard, of St. Joseph, and in closing by Dr. Geiger.

FIRST DAY — EVENING SESSION.

The evening session was held at Lake Casino and was called to order by Dr. J. H. Duncan, of St. Louis.

The President read his annual address.

Dr. Weyman moved that the President's address be accepted with the thanks of the Association.

Seconded and carried.

Dr. Jabez N. Jackson, of Kansas City, read the report of the Committee on Reorganization (vide Constitution and By-laws).

Dr. Mathews moved the adoption of the report as a whole. Seconded by Dr. Dorsett. After considerable discussion, owing to a misunderstanding of some provisions, the motion carried.

Dr. Geiger moved to extend greetings to the Illinois State Medical Association now in session in Illinois.

Seconded and carried.

Dr. Lutz read the Report of the Special Committee on Legislation: —

Your Special Committee on Legislation begs leave to report that there being no session of the General Assembly, our presence at the State Capitol was not necessary. We have, however, kept ourselves in touch with current events, and expect great assistance from the reorganized profession which will, we hope, be brought about at this meeting.

Concerning the "Kyger resolution for the Abolition of the Newspaper Publication of Personal Medical Advertisements," which was referred to us, your Committee beg to report that this Association joined the other State associations and local societies in calling attention of the Government Department to this growing evil.

We also request the adoption of the following resolution: —

Resolved, That we are in favor of establishing in the Department of the Interior a library for the study of criminal paupers and defective classes, it being understood that such investigation is a development of work already begun under the Federal Government. That such study shall include the collection of sociological and pathological data in hospitals, schools, and other institutions, that especially the causes of social evils shall be sought out with a view to ameliorating and preventing them.

We also recommend the adoption of the following resolutions: —

The Missouri State Medical Association extends its hearty congratulations to the people of this State on account of the humane and wise action of the Board of Managers of Asylum No. 1, at Fulton, who have placed the unfortunate insane again in charge of the medical profession.

We deprecate the action of certain persons who have thought it incumbent upon themselves to denounce the chief magistrate of this State because the managers of the Asylum appointed by him have thought it for the best interests of the insane that their care and treatment be intrusted to the

votaries of science and not to those whose greatest qualification for the discharge of the responsible positions which they obtained consisted in their ability to take advantage of a situation which now happily does not exist.

We hereby express our utmost confidence in the Governor of Missouri, whose every official act, so far as it related to the preservation of the lives and health of our people and the amelioration of the sufferings of the State's wards, has been characterized by such a thorough understanding of the necessities of the occasion, as is vouchsafed in its broadest sense only to those who by study and personal experience have learned to know the needs of the afflicted.

On motion the report and resolutions were unanimously adopted.

On motion adjourned to 9:30 Wednesday morning.

SECOND DAY—MORNING SESSION.

The meeting was called to order by the President at 9:30 a. m.

The President appointed the following gentlemen as Auditing Committee: Dr. Pinckney French, of St. Louis, Chairman; Dr. J. H. Thompson, of Kansas City, and Dr. A. W. McAllister, of Columbia.

In accordance with Chapter VII., Section 3, of the new Constitution and By-Laws, the President appointed Dr. Frank J. Lutz, of St. Louis, Committee on National Legislation, with Dr. A. W. McAllister, of Columbia, as alternate.

Dr. Bransford Lewis, of St. Louis, demonstrated Ureter Cystoscopes for male and female.

Discussed by Dr. Marks of Kansas City.

Dr. S. P. Fulkerson, of Lexington, read a paper entitled: "The Medical Treatment of Appendicitis."

Dr. A. H. Cordier, of Kansas City, read a paper entitled: "Some Clinical and Operative Phases of Appendicitis."

Both papers were discussed by Drs. French, of St. Louis; Binnie, of Kansas City; McCandless, of St. Louis; Nash, of Maryville; Bartlett, of St. Louis; Pearse, of Kansas City, and in closing by Drs. Fulkerson and Cordier.

Dr. G. Wiley Broome, of St. Louis, read a paper entitled: "Has Prostatectomy Come to Stay."

Discussed by Drs. Lewis, of St. Louis, and Campbell of St. Joseph.

On motion adjourned to 1: 30 p. m.

SECOND DAY — AFTERNOON SESSION.

The Auditing Committee made the following report: —

ST. JOSEPH, MO., May 21, 1902.

We, the undersigned, appointed as Auditing Committee, have this day examined the accounts of the money received and disbursed by the Treasurer of the Missouri State Medical Association, Dr. J. F. Welch, for the year ending May 19th, 1902, and find as follows: —

1901.

May 13. Money on hand	$ 41.61
May 13 to May 19, 1902, Account business attested	1,064.20
	$1,105.81

DISBURSEMENTS.

May 19. By vouchers on hand	$868.94
May 19. By cash on Salisbury Savings Bank	236.87
	$1,105.81

May 21, 1902. Attest, Correct:

PINKNEY FRENCH,
J. H. THOMPSON,
A. W. MCALESTER,
Committee.

On motion the report was received and approved.

The following invitation from the North Missouri Medical Association was read: —

The Officers and Members of the North Missouri Medical Association extend a cordial invitation to all members of the State Medical Association to come to Macon City, June 19th and 20th.

The Secretary presented a bill from Mr. Barbee, of Kansas City, for stenographic and typewriting services.

On motion this bill was referred to the Auditing Committee.

Dr. John D. Seba read the "Report of a Case of Fatty Tumor, with Presentation of Specimen."

Dr. C. M. Nicholson, of St. Louis, read a paper entitled: "Removal of Tumor of the Liver, with Presentation of Patient."

The Carcinoma Symposium was opened by Dr. F. J. Lutz, of St. Louis, with a paper entitled: "Concerning the Etiology of Cancer."

Dr. Roswell Park, of Buffalo, N. Y., read a paper entitled: "Some Aspects of the Cancer Problem."

Dr. F. J. Lutz offered the following resolution:—

Resolved, That this Association has heard with much interest the instructive address delivered by Dr. Roswell Park, of Buffalo, and we hereby extend to him our thanks for its presentation. And as an expression of our appreciation of the distinguished services which his labors are rendering to mankind in connection with the study of cancer, he be and is hereby elected an honorary member of this Association.

On motion the resolution was unanimously adopted.

Dr. A. V. L. Brokaw, of St. Louis, read a paper entitled: "Removal of an Upholsterer's Tack from the Right Bronchus."

Discussed by Drs. McCandless, of St. Louis; Von Quast, of Kansas City; Meisenbach, of St. Louis; Seba, of Bland; C. A. Mitchell, of Blythedale.

Dr. A. H. Meisenbach, of St. Louis, read a paper entitled: "Empyema of the Gall Bladder."

Discussed by Drs. Pearse, of Kansas City; Campbell, of St. Joseph; Von Quast, of Kansas City; and by Dr. Meisenbach in closing.

Dr. A. H. Ohmann-Dumesnil, of St. Louis, read a paper entitled: "Some Cases of Diseases of the Nails. Two of Koilonychia."

Dr. S. M. Reynolds, of King City, read a paper entitled: "Case of Acromegalia."

Discussed by Dr. Seba of Bland, and the President.

On motion adjourned to 9:30 Thursday morning.

THIRD DAY — MORNING SESSION.

The meeting was called to order by the President at 9:30 a. m.

Dr. W. B. Dorsett offered a resolution of congratulations to the members of the State Board of Health for the excellent work done since they have been in office.

On motion this was unanimously adopted.

The following telegram was read:—

QUINCY, ILL., May 21st.

The Missouri State Medical Society, St. Louis:

The Illinois State Medical Society acknowledge receipt of congratulations and cordially return same.

(Signed), E. W. WEIS, *Secretary.*

Dr. A. W. McAllister of Columbia, read the "Report of the Committee on Medical Education."

Discussed by Dr. Weyman, of St. Joseph.

Dr. Hal. Foster, of Kansas City, read a paper entitled: "The Subcutaneous Use of Paraffin in Deformed Noses."

Dr. H. W. Loeb read a paper entitled: "Nose Bleed."

Discussed by the President, Drs. Clark of Kansas City, Orr, of St. Louis, and by Dr. Loeb in closing.

Dr. Barck, of St. Louis, read the "Report of the Committee on Ophthalmology and Otology."

On motion the Association proceeded to the election of its officers by ballot for the coming year.

Dr. B. C. Hyde, Recording Secretary, offered his resignation as follows: —

To the Missouri State Medical Association:

Having had the honor to serve this Association as Assistant Recording Secretary two years and as Recording Secretary four years, I desire at this time to tender my resignation of the office of Recording Secretary to take effect when my successor is appointed at this meeting.

I take this opportunity to thank the officers, committeemen and members of this body for their kind indulgence and many courtesies in the past, and I gladly look to the increase of influence and usefulness which will be the fortune of the Association in the future.

Respectfully submitted,

B. C. Hyde.

On motion Dr. Hyde's resignation was accepted with regrets.

Dr. Mathews moved that the Association tender a vote of thanks to the retiring Secretary for the very efficient manner in which he has performed the duties of his office during the past four years.

Seconded and by a rising vote unanimously carried.

The members than cast ballots for the office of President which resulted in Dr. Woodson Moss, of Columbia, receiving a majority vote.

On motion of Dr. Gore, seconded by Dr. Woodson, the Secretary was instructed to cast the unanimous ballot of the Association for Dr. Moss as President, which he did.

Dr. Pinckney French and Dr. Ferguson were appointed to escort Dr. Moss to the platform.

Dr. Moss made a few remarks in accepting the office of President and thanked the Association for the honor conferred upon him.

The Nominating Committee reported as follows:—

Vice-Presidents	M. P. Overholtzer, of Harrisonville.
	Barton Pitts, St. Joseph.
	A. C. Robinson, St. Louis.
	Frank DeVilbliss, Spring Garden.
	V. Q. Bonham, New Franklin.
Recording Secretary	C. M. Nicholson, St. Louis.
Associate Recording Secretary	E. J. Goodin, St. Louis.
Treasurer	J. F. Welch, Salisbury.

On motion the report was accepted and adopted.

Dr. Hyde moved, seconded by Dr. Moore, that the Associate Recording Secretary be made the official reporter for the Association.

Carried.

Dr. Jackson moved that Dr. Lutz be selected by the Association as its representative in the House of Delegates in the American Medical Association.

Dr. Weyman moved to amend Dr. Jackson's motion and that a formal ballot be cast for the selection of this delegate.

Seconded and carried.

Dr. Frank J. Lutz, of St. Louis, was chosen by the ballot to represent the Association in the House of Delegates of the American Medical Association.

On motion, Dr. C. H. Wallace, of St. Joseph, was made alternate delegate in the House of Delegates.

Dr. J. Rule Fritts offered the following resolution: —

Resolved, That the Secretary be instructed to print copies of the new Constitution and By-Laws and have as a preamble the President's Address, and that a copy be sent to every regular practitioner throughout the State.

On motion, it was unanimously adopted.

On motion, the place of meeting for 1903 was then taken up. Joplin and Excelsior Springs were voted upon by a standing vote and Excelsior Springs was chosen as the next meeting place, the third Tuesday in May, 1903.

On motion, adjourned to 1:30 p. m.

THIRD DAY — AFTERNOON.

Meeting was called to order by the President at 1:30 p. m.

Dr. W. L. Kenney read a paper entitled: "Cancer of the Eyelids Treated by X-Rays," and presented a patient.

Dr. J. W. Sherer, of Kansas City, read a paper entitled: "The Evolution of the Eye."

Dr. M. F. Weyman, of St. Joseph, gave a "Demonstration of Bandage for Eye and Mastoid Dressing."

Dr. E. A. Donelan, of St. Joseph, read a paper entitled; "The Importance of Medical Examiners for Schools."

Dr. R. O. Cross, of Kansas City, read a paper entitled "The State's Duty in the Matter of Prevention of Pulmonary Tuberculosis."

The discussion of these papers was participated in by Dr. Mitchell and the President.

Dr. F. G. Nifong, of St. Louis, read a paper entitled: "The Active Principle of Quackery."

Dr. W. T. Elam, of St. Joseph, read a paper entitled: "Sexual Neurasthenia in the Male."

Dr. T. F. Lockwood, of Butler, read a paper entitled: "Taking Cold; a Misnomer."

The following resolution was unanimously adopted:—

Resolved, That the Medical Association of Missouri hereby extends a cordial and unanimous vote of thanks to the people and Medical Profession of St. Joseph, and especially to Mrs. C. W. Fassett and ladies, Dr. C. R. Woodson, and the Committee of Arrangements, for their many courtesies and kind hospitality enjoyed by us at this our Forty-fifth Annual Meeting.

Dr. Mitchell offered the following resolution:—

Whereas, a high degree of perfection is essential to a complete organization of any successful scientific or deliberative body, therefore be it

Resolved, That the President appoint one member of this Society in each Congressional District as an organizer to perfect the County Associations into live and healthy nurseries for the State Medical Association.

On motion the resolution was unanimously adopted.

On motion the thanks of the Association were extended to Dr. Griffith for the able and impartial manner in which he presided over the meeting. By a rising vote this was unanimously carried.

On motion adjourned to meet in Excelsior Springs in 1903.

PRESIDENT'S ADDRESS.

By J. D. Griffith.

Gentlemen of the Missouri State Medical Association:

The decree has gone forth that the servant of the Medical Association of Missouri must deliver an annual address. I am fully conscious of my inability to discharge this duty, especially as this, the forty-fifth meeting, is probably, or should be at least, the most important in the history of the medical organizations of our great commonwealth; again, I cannot but feel great timidity in addressing you when I see so many distinguished members here, who have grown aged in the work of this body.

I wish first to express my thanks to you for the honor conferred in electing me your presiding officer — the highest honor that can be awarded by the members of the profession in the State.

Our thanks are certainly due to the Committee of Arrangements for their generous entertainment and hospitality; to the Committee on Scientific Communications, for we are having a most delightful medical feast; to the Committee on Publication, their work having been most beautiful and expeditious; also to the Committee on Reorganization, who have done most excellent work during the past year.

The spirit of the age manifests itself in the concentration of power. Above all other professions the medical needs co-operative action and systematic organization. In this State we have reached a period where reform is necessary. Let us not forget the change must come slowly, otherwise it may defeat its purpose in an effort to proceed too fast. Let our key-note be — "In unity there is strength." We of medi-

cine do not like well the idea of relinquishing long entertained opinions, even though we may know they are not for the best. Let us inquire of ourselves and see that no prejudices are harbored, as we can rest assured that our changed relationship does not involve necessarily the surrender of old entertained convictions. It may be that we, as individuals, do not feel at liberty to act at once, but this will all come about by gradual adjustment and State environment. It devolves upon the profession to stimulate, to restrain or otherwise control the law-making powers of our Congress and Legislatures, and this can only be done by complete organization. Our responsibility is increased rather than diminished.

We have to-day too many miscellaneous medical societies without any common plan, thus detracting from, rather than adding to, the influence of our national organization. The legitimate action of every regular physician should be to give support to the American Medical Association and all societies in affiliation with it. We have medical laws. The general public does not interest itself in having the statutes enforced—and why? First, because it is the duty of the profession. Second, when the layman has thrown into his ears the bickerings and jealousies of his medical advisor concerning his brother, he loses that high regard for the profession which should obtain and is now not interested in the least in your medical laws. A single physician acting alone can accomplish very little or nothing; a single county or district medical society no more than the individual. We are not by any means all William McClures. We need each other's advice, help and upbuilding influence as no other men do. Let us get rid of this spirit of contention, which is base and so infects and divides the people in every community as to destroy the public respect and confidence which we merit. Let us throw aside our personal jealousies and unite in our effort to obtain a systematic organization. Life is but a span, we live for those that follow, and there is but one definition of happiness:

"What of comfort and pleasure we can be to others." All else is selfishness, unfit for our noble calling.

We are not merely physicians, but we are citizens, and it behooves us to be models in this respect, taking an active part in every-day affairs. We have no right as good citizens to hold aloof from anything where the good of our fellow-man is at stake. Your influence in the family is more potent than that of the minister. There is but one way that you can make this influence felt, for the welfare of all — that is by well understood professional organization. Are you aware, gentlemen, that to-day in the State of Alabama no man is nominated for a position as legislator or congressman without the county or district medical society is consulted, and as a consequence the body politic of that State has nothing to do with its eleemosynary institutions, health boards or statistics. Philanthropy and the administration of State institutions have developed within the last ten years into a science. No party reason should ever influence the appointment of any one to control or in any way have anything to do with these (to the welfare of our commonwealth) most important places. Health boards in every State and county are now an absolute necessity, and you all know full well the necessity of a complete record of births, deaths and marriages. Are you aware that to-day this great State of ours has no complete vital statistic record or report?

We have in our great State 16 congressional districts and 114 counties. We have between 5,000 and 6,000 physicians — regular. We have 13 district medical societies, 25 or 26 county medical societies, and 8 or 10 special medical societies — an appalling fact. Our meeting at Jefferson City was a representative one. There were 269 in attendance, of this number 17 were by invitation, 57 from district medical societies and seven registered — no county or district society given. Does any physician within the sound of my voice look upon this condition of affairs with pride?

It is an astonishing fact that, although some of our State medical societies have been in existence for more than half a century, only one in three regular physicians are members of their State or county societies, and only one in ten are members of the American Medical Association. Mark the frightful condition of Missouri, now that we are 45 years old; our membership should be at least 3,000. Do we not deserve criticism by the laity? One of the difficulties of the past has been that the State societies have not performed their full functions, being, as a rule, simply scientific bodies. Probably nothing has created as much dissatisfaction among the general mass of the profession in the past as the fact that the State societies have done nothing to enforce the laws or look after the material interests of the profession in any way. Business has been neglected and sacrificed for the sake of scientific work in probably three-fourths of the State societies of our country.

The enforcement of the medical laws of our commonwealth depend upon the co-operative action and systematic organization of our State Medical Association; the efforts, time and money of its members. We should be a chartered body empowered (if possible) so that every county or district medical society could obtain its charter from the State organization, thus making the county or district society the integer of the State and national bodies. Only a day or two since, I was more than surprised to find this paragraph in our esteemed Kansas City *Medical Record:* —

"We trust that the next Legislature of the State of Missouri will deal with this matter (referring to a decision rendered by the Court of Appeals in Kansas City) in a manner that will not be misunderstood by the physicians, the people or the Christian Scientists."

Is there no way that the profession will ever be able to protect the commonwealth from the spread of contagious or infectious disease? Should Doctor Fulton, our able editor, who knows well that there is no organized body in our State that

can see to it, that even the already existing medical laws are enforced and needed laws enacted, I say, should he be surprised that the Christian Scientist should follow her vocation?

If you desire a medical man as Commissioner at Washington — organize. If you wish to place your Congressional representative — organize. If you wish the ear and acts of your State Legislature — organize. You can place your calling on a higher plane, where it properly belongs; you can make the charlatans and quacks fold their tents and quietly steal away.

Membership in the county or district medical society should carry *ipso facto* membership in the State and national associations. By this you at once, on account of your increase in membership, bring your fees to a minimum; you at once (on account of the report of the officers of the county or district medical societies, to the secretary of the State Medical Society), do away with your credentials, and the home society becomes the foundation of the State and national organizations.

One fee of five dollars to your county medical society pays, where you now pay eleven.

The question, then, of vital importance that should first claim our attention to-day is a complete reorganization of our present constitution and by-laws. Looking back upon the career of our Association from a business standpoint, I think you will all agree that a united effort is necessary for a radical change. Let us compare our constitution and by-laws with the American Medical Association's.

The changes that must take place cover three points: (1) The change in the Association itself; (2) our changed relationship with the American Medical Association; (3) the relationship of the county or district medical society to our State organization.

First. The change in our State Association: We should be a chartered body; and composed of members of county and district medical societies holding charters from the State

body (of course remembering always our guests and honorary members). There should be two distinct branches in the make-up of our organization — scientific and legislative. While every member (in good standing) of the county or district society will have the privilege of attendance, as he is a component of the State society, each county will send one or more delegates to the State society, who shall collectively compose a "House of Delegates" or Judicial Council and have charge of the legislative and material interests of the profession; thus, while the larger body is engaged in the reading and discussion of papers and other scientific work — as now — the small delegate body, representative and selected for this especial purpose, may devote as much of the three days as may be necessary to legislative and business matters. The entire membership of both branches of the organization being made up by registration — this compared with the rosters from the county and district medical secretaries — thus doing away with the idea that a man must prove his right to attend the general meeting of the State Association, outside of the official report sent in by the secretaries of the affiliated societies. In the revised constitution and by-laws of the A. M. A.: "No member of the House of Delegates is eligible to an office in the Association;" medical politics will thereby be reduced to a minimum. Let us remember this.

Second. The changed relationship of our State Association to the A. M. A.: Heretofore the State society had the same relationship to the A. M. A. as did the city, county or district societies. In the future only the State Societies will be represented; in other words, the State society, practically, will create the legislative body of the A. M. A., and the House of Delegates will be a body in which are federated all of the State societies. We select or elect our delegates in proportion of one to five hundred active members, or minor fraction of this number. In the past the individual delegate was of small importance; in the future the opposite will be the case.

Third. The relationship of the county or district medical society to the State Association: The duties of the Committee on Medical Ethics, which have always been anything else but agreeable, have been well carried out when complaints have been made. In the case of a member of the Pettis County Medical Society, your committee, through its chairman, has as usual done his duty most beautifully, as the following letter speaks for itself: —

"KANSAS CITY, MO., May 14th, 1902.

Dr. H. De Lamatar, Sedalia, Mo.

DEAR DOCTOR: Your letter of April 29th, to Dr. Simmons, Secretary of the American Medical Association, relative to violation of the by-laws of the Pettis County Medical Society by some of its members, who are, I presume, also members of the American Medical Association, was referred by Dr. Simmons to Dr. J. D. Griffith, President of the Missouri State Medical Association. Dr. Griffith has referred it to me as Chairman of the Committee on Ethics of the State Medical Association. It is evident to me that the first step for you to take is to arraign these culprits before their own county society. If the county society should fail to investigate the matter or should take such action in the premises as seemed to you to constitute in itself a violation of the Code of Ethics of the American Medical Association, then you should arraign the Pettis County Medical Society before the Missouri State Medical Association. If on investigation of the matter duly referred to them it were found by the Committee on Ethics of the State Association that the Pettis County Medical Society was violating the Code of Ethics, it would be the duty of the committee to recommend to the State Association that the Pettis County Medical Society be no longer admitted to representation in the State Association. This having been done they would likewise forfeit their right to representation in the American Medical Association.

I am heartily in sympathy with your desire to bring the members of the Pettis County Medical Society up to adherence to their by-laws and to the national Code of Ethics, and I am sorry to have to indicate to you such an unpleasant way of beginning the work, but it seems to me that it is the right way.

I am, yours respectfully,

E. W. SCHAUFFLER,
Chairman Committee on Ethics,
Missouri State Medical Association."

Should our new constitution and by-laws go into operation this committee as well as the one on credentials should be relegated to the past.

The A. M. A. having taken from the county or district medical societies their rights to send delegates, these must obtain their representation through the State society; hence the necessity of a more direct relationship of the county or district societies to the State society than has existed in the past.

The steps taken by the A. M. A. in adopting the report of the reorganization committee and accepting the new constitution and by-laws arranged by that committee will prove to be an immense advantage to the medical profession of this country if the State societies organize in accord with their suggestions. Under the new rules and regulations the strength of our State society will be doubled and of course the influence will grow.

To describe Missouri would be as though to weave a fairy tale of beauty, culture, peace and happiness; ranking, as it does, first when considered as an independent producer of all things that are necessary for the happiness and comfort of man; a population of over three and one-fourth millions, and with a property valuation for taxation beyond that of the great State of Illinois; with an acreage of forty-one millions and no desert lands; with extensive agricultural interests; with coal, lead, iron, zinc and timber in almost endless quantity,—notwithstanding all of these resources and accumulated wealth we have made little progress towards protecting the health of our fellow-man and taking care of those who, on account of their infirmities, are not able to care for themselves. We can boast of eight eleemosynary institutions supported by the State, with a taxable property of one billion, fifty million dollars and a bonded indebtedness of nine million.

Our asylums have now under care and treatment about 3,000; we have a board and officers appointed for a colony for the feeble minded and epileptics; we have a Reform School for boys at Boonville, accommodating about 400; an Industrial School at Chillicothe for girls, with about 100

in attendance; a Confederate Home at Higginsville, with about 160 inmates, and a Federal Soldiers' Home at St. James taking care of 90 — approximately; the Missouri School for the Blind, located at St. Louis, with about 150 pupils, and the Missouri School for the Deaf and Dumb at Fulton with a little over 400 students.

Our great State takes the best of care of its insane, many of whom have made splendid citizens and now can never again take any part in the welfare of the community. We take care of our aged men and women, these certainly merit attention as long as time is allotted to them. Our State schools are monuments which will endure always. Those who have been so unfortunate as to have had changes in the brain tissue, bringing about epilepsy, should certainly have the State's care. The German Evangelical Synod of North America is doing, through Dr. Alexander, physician in charge, a good work at Emmaus and St. Charles, having admitted and taken care of 121 patients. Ohio was the first State in the Union to establish a Hospital for Epileptics. This bill passed the Legislature in 1890, appropriating $40,000. The building accommodates 250 patients. Statistics show that outside of institutions, of all ages, ranging from 2 years to very old, there are 3,500. In Illinois there are over 6,000 of these hopeless, helpless, unfortunate creatures. It is natural that we should shrink from sending friends and our relatives to these public institutions; however, experience shows that it is the best place for them, and we all know how dangerous these patients are to the present and the future. Our State should make liberal appropriations for carrying out this work, which should be taken in charge by an active Board of Charities and Correction. Minnesota maintains an excellent Hospital for Crippled and Deformed Children. Missouri should certainly look to these, as they are to make up a part of the future citizenship.

Tuberculosis is certainly a preventable, if not always a curable disease, and as there are to-day in our State at least

53,000 persons suffering from this, the "Captain of the hosts of Death," is it not important that we should have immediate legislation on this subject? Your most excellent State Board of Health is doing great work, as far as possible, but their hands are tied doubly. First, a want of proper appropriation; second, want of county boards of health and compulsory laws on vital statistics. The laws of Michigan on vital statistics are certainly most thorough and accurate. The report of the Committtee on Demography and Statistics, in their sanitary relations, of the American Public Health Association, which was approved by the Commissioner of Labor and Director of the Census at Washington, D. C., giving the essential requirements of a law for the registration of deaths and the collection of mortuary statistics, is now put in force, having been approved by the authorities in the District of Columbia, Colorado, Indiana, Illinois and Michigan. The necessity for uniformity in all of the States, in a certificate of death, is patent to every one when we think of a Federal census. Again, deaths are registered primarily for legal purposes. A subsidiary and valuable use of registration is for the compilation of sanitary statistics; by this means the local, State and Federal boards of health may obtain results, direct measures and improve methods; also show plainly the movements of population.

Hoping that our State may fall into line I submit the report of the Committee of the American Public Health Association, setting forth the necessary provisions for establishing the Standard Death Certificate. (I will not take your time to read report inclosed.)

Every man who is dangerous to property or life, whether insane, criminal or feeble-minded, should be confined, but not necessarily punished. The prison should be a reformatory and the reformatory a school, for the purpose of teaching good, mental, moral and physical habits — both educational. This object cannot be accomplished with a jail in an unsanitary condition.

Dr. MacDonald of Washington, D. C., has asked that you consider the following: —

"*Resolved,* That we are in favor of establishing in the Department of the Interior a laboratory for the study of criminal, pauper and defective classes, it being understood that such investigation is a development of work already begun under the Federal government. That such study shall include the collection of sociological and pathological data in the hospitals, schools and other institutions; that especially the causes of social evils shall be sought out with a view to ameliorating or preventing them."

Dr. Fulton B. Turek of Chicago has asked you to consider the introduction into the medical schools of the United States the practical teaching of dietetics, physico-mechanical therapeutics and hydrotherapy. The teaching of the future must be practical and objective.

The Spooner-Ray bill introduced in the Senate of the United States, establishing a Commission of Public Health, is one that this country has needed for a long time. Your co-operation is certainly most desirable.

Now, gentlemen, in conclusion, let me say that the principles of the Civil Service Merit System should be adopted in the appointments, service and conduct of the affairs of all State charitable institutions. I would suggest that one of your standing committees be that on Public Policy and Legislation.

Last, as said by Dr. McCormack: The reforms here suggested will require years of time, patient and self-sacrificing effort and quite an expense, but no one who will give thought to the subject can question that the results to be secured are worth all of these. With a united profession we can easily guide legislation, State and national, into such channels as will accomplish most for ourselves and for our country, and at the same time give our great and noble profession that high place in the public estimation which up to the present time has been impossible because of defective organization and dissensions in our own ranks, which are unworthy of us. As individuals we are too frequently apt to drop the substance and grasp the shadow.

REPORT UPON THE PROGRESS OF GYNECOLOGY.

By C. H. Wallace, M. D., St. Joseph.

Ever since the immortal Sims demonstrated the possibilities to be attained by operative methods upon the pelvic organs of the female, there has been a gradual drifting away from the office treatment by topical application, until to-day gynecology is but a part and parcel of general surgery. Teachers and clinicians no longer drill into the student the office treatment of female fidorders, but on the contrary teach that anatomical lesions must be repaired, if we hope to restore, in part or in toto, impaired or destroyed functions. In view of these facts, I shall endeavor to convey, in a measure, the advance along strictly surgical lines in a few of the diseases incident to the female pelvic.

EXTRA-UTERINE PREGNANCY.

This is comparatively a brand new anomaly to medical science and until recently was considered a *rara avis*. The great increase in the reported cases of this condition in the past few years, is not due so much to an increase in the conditions which give rise to its existence, but to greater alertness upon the part of physicians and surgeons in its recognition.

PRE-RUPTURE DIAGNOSIS.

Those who have observed the alarming conditions surrounding a rupture tubal pregnancy can readily appreciate the importance on the part of the profession, for a greater effect

at diagnosis before the rupture stage. In a given case of exposure, followed by a cessation of the menstrual flow, with an irregular strain, probably shreddy in character, with irregular and frequent pains upon one or the other side of the pelvis, irritability of the bladder and rectum, and with the usual constitutional sensations incident to conception, should lead to a suspicion of the probable existence of tubal gestation on the part of the physician or surgeon becoming familiar with this symptomatology. An examination of such patients, with the vagina and uterus presenting the appearance as found in normal pregnancy, with an elastic, sensitive and frequently crepitant at one side or the other of the uterus, and such a tumor in close proximity, but not a part of the ovary, the diagnosis of tubal pregnancy can be made with reasonable certainty.

The importance of this subject demands not so much instruction and discussion upon the technique of operative measures in ectopic gestation, but the diagnosis is the greater life saver. Diagnosis is primary and operation secondary. The post-rupture diagnosis is not a difficult proposition. The clinical history already given, with the condition of a severe tearing pain in the pelvis, accompanied or followed by fainting, pallor, rapid pulse, great apprehension of impending calamity, are pathogomonic of abdominal inversion. Upon pre-rupture diagnosis depends our hope for the most successful management of these cases, in that it gives an opportunity to the patient for the advantage of both hospital environment and surgical skill; one or both, in all these cases where the detective is a physician only.

The route of invasion in these cases seems to point clearly to abdominal section, save in what may be sub-acute rupture with formation of interligimentus or pelvic hematocele which may best be attacked by free vaginal incision and thorough washing out of the cavity. These latter cases should never be attempted unless due preparation of the abdomen has been made that a laparotomy may be done in case of alarming hemorrhage, which not uncommonly occurs.

THE RELATION OF THE DISEASES OF THE FEMALE GENERATIVE ORGANS TO NERVOUS AND MENTAL DISEASES.

We mean to consider under this head operations upon diseased and not healthy organs, as entering as potent factors in the cure of nervous and mental affections in the female. That there was a relation of cause and effect between the various neuroses and diseases of the female pelvic organs was probably first clinically demonstrated by Emmet in the results he obtained in the repair of perineal and cervical lesions, by the operations which bear his name. Notwithstanding this demonstration of good results, both by him and numerous operators the world over, who, guided by the light he had given, verified his teachings by numerous reports, it has only been within the past few years that neurologists would yield from their universally maintained dogmatic stand that pelvic lesions had no more to do with the production of neurotic disorders in the female than those lesions in other portions of the body. This has been a warmly debated subject in every medical gathering where the subject has gained reference for the past decade, with a slight victory for the gynecologists upon every occasion, as evidenced by an occasional neurologist admitting it as a causative factor and the rapid recruits from the general profession at large, who had observed the unmistakable results following operative measures in indicated cases.

I dare the assertion that there is not a prominent gynecologist or surgeon who has not had the satisfaction of demonstrating the certainty of this relation by having numerous patients come to him after having had the attention of the most learned neurologists, and the most perfect equipment necessary to the "rest cure," and be restored to health by the correction of pathological lesions in the pelvis by operative measures. Dr. Sherwood Dunn, in a most excellent article upon this subject, says: "If neuresthenia is the result of a

change in the nerve cell, due to too great exercise of its functional activity, then disease of the pelvis organs furnished the most frequent seat of this irritation and the primal cause must be corrected if a cure is to be effected. The rest cure, tonic and liberal diet may improve the condition of the neurasthenic suffering from the pelvic disorder, but her condition becomes as bad as ever or worse than before — when she is removed from the favorable environment and is again subjected to care and labor of daily life. There is no time in a woman's life, from puberty to old age, that we do not have presented before us an intimate physiological relation between her generative organs and the several nervous systems, and through these to every organ and part of her body."

Laphorn Smith draws the following conclusions from his investigation and experience of this subject: —

1. "In the majority of the cases of nervous and mental disturbances, the cause is not due to organic disease, but to functional disorders of the circulation and its circulatory fluid.

2. In many cases in women the disorder of the brain's circulation is caused by reflex irritation carried by the sympathetic from the pelvic organs (as by retroversion of the uterus, cirrhotic ovaries, fibroid tumors, etc.).

3. In other cases it is the fluid circulating in the brain which is at fault; in some it is poor quality because the digestive apparatus is interfered with by reflex irritation of the sympathetic, due to lacerated cervix, endometritis, etc.

4. Hundreds of cases are now on record of neurosis and insanities being cured by the removal of the cause, the greatest number of cures having followed ventro-fixation and shortening of the round ligaments for the correction of retro-displacements, while many others have followed the ablation of fibroids, cirrhotic ovaries, the repair of lacerated and even simple curettement.

5. Such being the case it is the duty of every family physician to examine every woman in his practice who devel-

ops nervous or mental disturbance, and if pelvic disease is discovered, eliminate it is a causative factor.

It is the duty of every medical superintendent of an insane hospital to have a systematic examination of every female patient, so that unsuspected sources of irritation of the sympathetic situated in the pelvis may be removed."

Let us hope by repeated discussion of this important subject to establish the same intimate consultant relations between the neurologist and alienist and the gynecologist and surgeon that exists between the gynecologists and surgeon and the general practitioner. Let us hope to soon have connected with every insane hospital, a gynecologist who shall lend a helping hand to the superintendent in eliminating these causative factors in the production of mental diseases.

ACUTE PELVIC INFLAMMATION IN THE FEMALE.

This pathological condition by reason of its frequency and universal presence is of especial interest alike to the surgeon and general profession at large.

The acute inflammation of the pelvis according to the general characteristic of the infecting agent may be divided into two classes, the specific and septic. The infection occurs more frequently from the gonococcus than from other micro-organism; indeed, but for the professional abortionist in every community the septic variety would be comparatively rare. The prevailing treatment of to-day for both classes of infection is what may be termed the expectant, which may be summarized under eight heads, viz.: —

1. And most important, rest in bed.

2. Vaginal irritation with antiseptic solutions under low pressure with well assured return of flow.

3. Pain relief, by hypodermics of morphia, opium suppositories or interjection of opiated solutions.

4. Limitation of inflammation by ice bladder applications to the lower abdomen.

5. Wet cupping or leeching of the iliac fossa.
6. Quinine and acetanilid for fever.
7. Purgatives, laxatives and enemata for constipation.
8. Milk diet and alcoholic stimulations.

In many cases this line of treatment suffices to abort more serious trouble, in others it at least tides them over to the circumscribed stage of pus formation, where operative measures are reasonably safe.

During the past year a number of gynecologists have advocated the abandonment of this expectant plan of treatment as unsatisfactory and incomplete, in that in too many cases it left a pathology that demanded excision to the extent of functional destruction.

In a recent paper, Dr. Wm. Polk, of New York, advocated vaginal incision and drainage in every case of acute pelvic inflammation and reported some 18 cases so treated in which the results were better as shown by a rate of recovery far in excess of the expectant plan. These results confirmed the author of the paper of the wisdom of incisions as an addition to mere expectancy. Dr. Polk advocates the routine treatment of early vaginal incision in all cases of pelvic infection of specific and septic origin. I quote the technique in his own words: "If of severe type specific or septic in addition to the measure recognized as called for by the accompanying endomentritis free incision should be made into the cul-de-sac of Douglas, one incision being made from the uterus to the bottom of the cul-de-sac and met if necessary at a transverse incision midway the initial cut.

The tubes should be brought down if possible and their contents forced out through the natural opening, the fimbriated end. If the general cavity of the peritoneum has not been walled off, gauze should be packed above them before this procedure is attempted.

After clearing the field of operation the gauze should be withdrawn and a large perforated rubber drainage tube fixed in the vaginal opening. The tube is withdrawn in three days,

then hot douches are used for a week or ten days with cathartics, poultices, anodynes as indicated. Where there exists something palpable in the pelvis, all surgeons believe in incision and evacuation; however, we doubt the prudence of advocating a measure so difficult, and of necessity accompanied by so much risk of extending the infection, to any but the most skilled and experienced, yet the claim of a procedure that will abort future destructive disease from a man of such extensive experience and reputation should at least receive consideration and trial for verification or rejection.

UTERINE FIBRO-MYOMA.

A cycle of teaching embracing treatment by drugs and by electricity, by ligation of the ovarian and uterine arteries, by ovariotomy, to needless mutilation involving the removal of the uterus wherever a myoma was present, has been passed through and evolving from this experience has come the more conservative operation of myomectomy in properly selected cases.

It goes without saying that every myomatous should not be subject to operative measure, yet every case with health disturbance from pain hemorrhage and pressure symptoms of sufficient severity to reduce the myomectomy or a pan-hystero-myomectomy.

Dr. Howard Kelly's most extensive and excellent work along this line has demonstrated myomectomy to be the operation of election within the proper age limit in all single and discrete tumors and in many multiple and sub-serous tumors with well-defined borders.

The report of this authority of 97 myomectomies within the period of 7 years, with only three recurrences, demonstrated to the unbiased mind that this operation within certain limits has a growing place in fibroids of the uterus, depends much upon the condition encountered after the abdomen is opened, yet a careful examination preferably under anesthe-

sia, the relation of the tumor may be mapped out with sufficient accuracy to insure patients of probable relief without mutilation of organ or destruction of the function.

There is no question but that the dangers from septic and hemorrhage are greater following a myomectomy than following hystero-myomectomy in bunglesome indifferent hands with a careless slipshod technique, but happily operators with such defects seldom undertake operations of such gravity.

UTERINE CANCER.

Much literature in the past year from both American and European authors has dwelt upon the importance of the early diagnosis in this appallingly fatal malady. From our present standpoint of diagnosis fully as many cases are declined as inoperable as are subject to operative relief.

In many cases operation is at such a late period, that primary mortality is necessarily very large from the extensive removal of tissue required and in these cases where convalescence commences recurrence is early and always certain.

Upon three factors seems to hang our only hope of a lessened mortality, viz.: —

1. Detection and correction of the conditions that favor the development of cancer.
2. Early diagnosis of its presence when once implanted.
3. Early surgical interference and improvement in operative technique.

It is a demonstrated clinical fact that this is essentially a disease of women who have borne children. The nidus of the disease germinating in a wounded cervix and diseased endomentrium, hence the importance of preventive surgery in the detection and repair of these lesions in all women before the menopause. This being the case, why the general inactivity on the part of the profession in the detection and elimination of such potent factors in the production of one of the most fatal maladies that affect women?

Is the fault with the general practitioner? No, the reproach is largely upon those who teach — in not more thoroughly impressing upon the students and practitioner the necessity and duty of every man who delivers women, on insisting upon an examination some time in the first few months following parturition and noting the condition of both cervix and uterus. While we do not mean to be understood as advocating the repair of every trivial laceration of the cervix, yet we do insist that extensive lesion with eversion and erosion of the cervix and sub-involution of the uterus demands surgical attention not only on account of the immediate well-known effect of such conditions upon the general health of the patient but, of more importance, the hazard such patients are liable to, especially toward middle life.

As to the second factor, early diagnosis, every student should be taught and every practitioner should know, that every irregular flow in a woman who has previously been regular, that every hemorrhage of an unnatural character, in fact every departure from what has been normal in the individual case at a certain period of life, is pathological, and point suspiciously to the beginning or condition that leads to a beginning of uterine cancer, and, therefore, demands the closest and most critical study.

If these patients, either from the carelessness of the family physician or the ignorance on the part of the patient, are permitted to wait until the classical symptoms of pain, offensive discharge and failing health drive them to the surgeon or the gynecologist, her opportunity for relief has gone forever, the Kumph-Ries-Clark operation to the contrary notwithstanding. As to the third factor, early surgical interference. The recent tendency the world over, has been toward the adoption of abdominal methods of hysterectomy in preference to vaginal hysterectomy.

After reviewing 308 cases "Winter" concludes that vaginal hysterectomy cannot be considered a radical means of

cure of cancer in that the indications for operation cannot be extended.

It is only a question of time in the opinion of many that cancer will be demonstrated to be a microbic and infectious disease and the microbe isolated. At the present time operators recognize the dangers of infecting raw surfaces and are employing operative measures, that will, as far as possible, evert this danger.

For this reason, clamp operations have been pretty generally abandoned, save the electrical clamp of skene, where the cancer microbe is destroyed and fresh avenues are closed.

Reports show that abdominal hysterectomy with catgut is the operative method most generally in use and the best results obtained where there is a strict adherence to the disinfection of the field of the everting of reinfections of fresh areas.

The operative methods of Dr. Byne, of Brooklyn, have given results far ahead of extirpation by the knife, for reasons well understood, if the suspicion of the microbic origin of cancer be true.

He employs an electric cautery knife which destroys the cancer amoebae wherever it cuts. The future will probably show a more general adoption of this method when the technical difficulties to the operation of electrical apparatus are removed.

Our duty lies in more impressive detail on the part of instructors both in student and post-graduate work, and in turn the family physician educating his female patients that a departure from the normal condition in individual cases is a warning to her of abnormal conditions that demand examination and investigation.

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A PLEA FOR THE CONSERVATION OF THE UTERUS IN PELVIC INFLAMMATION.

By O. Beverly Campbell, A. M., M. D., St. Joseph.

The routine practice of removing the uterus in pelvic inflammation should be condemned as the needless sacrifice of an organ which will recover, at least symptomatically, if properly treated. Hysterectomy should be the exceptional practice in pelvic inflammation, only warrantable where the uterus is hopelessly diseased. The method is accredited as originating with the French school, from whence it soon spread to the great clinics of continental Europe, and is now becoming a popular practice in this country. The advocates of the method are fortified in their position by the pathologic findings in the uteri of women affected with pelvic inflammation. Thus, from the pathological standpoint, the metritic uterus rarely undergoes perfect resolution under any system of treatment; therefore, its removal is deemed justifiable. Hospital reports, now beginning to multiply, would seem to show the wisdom of the practice, by the claim that cases thus radically operated upon have made shorter and better recoveries, with fewer post-operative sequelae. It would be well for the advocates of this method to review the hospital reports of the operators who, to within the last few years, were advocating the removal of the opposite, apparently healthy, ovary in unilateral ovaritis and salpingitis, where it will be seen that the reports show that patients made prompter recoveries, with fewer relapses where both ovaries were removed.

The following is the teaching of the late Lawson Tait:

"If for chronic inflammatory disease it is necessary to remove one set of appendages, both ought to be removed, because a second operation will in all probability be required, and these second operations are far more dangerous than the first." It had also been quite definitely shown that unilateral inflammation of the appendages was only apparent; that in nearly every instance pathology could be demonstrated in the microscopically healthy ovary and tube. It was, indeed, almost a hopeless task to attempt to combat such positive evidence, and many conservative men who had the courage of their convictions and opposed the practice were doffed by the radical operators as back numbers. Finally, the profession awakened to their senses, as it was shown by indubitable proof that conservatism could be practiced upon the ovaries in pelvic inflammation, and the patient make a permanent recovery in a large percentage of cases. The artificial menopause precipitated by the removal of the ovaries, especially in young women, with its varied train of unpleasant and at times serious mental symptoms; the strained connubial relations on account of sterility, and the changes in disposition of the wife — these and many other untoward post-operative conditions forcibly impressed the profession with the necessity of conserving the ovaries when possible. So that, while the radical practice of removing the ovaries in unilateral pelvic inflammation was a correct procedure from the pathologic standpoint, and while hospital reports for a time confirmed the wisdom of the practice, as clinical evidence from trustworthy sources accumulated, showing the greater number of mental and physical wrecks among the young women whose ovaries had been removed, the broken marriage engagements, and estrangement of husbands from their wives, and the divorces following, called for the necessity of a careful consideration of the possibility of conserving the ovaries, so that the radical practice of ablation was quite reversed. So that statistical reports from the hospital practice of operators who are prac-

ticing methods that do not appeal to reason, only offering a cure by the process of ablation, should be carefully weighed in the balance before we accept them as a part of our practice. Indeed, the number of cases in which both ovaries require removal in pelvic inflammation are becoming fewer each year, as operators become more and more convinced with the necessity and the utility of conservative methods. I feel quite sure that the average gynecologist can but feel a tinge of remorse when he is reminded of the wholesale removal of ovaries, a period through which we have just passed, and the countless number of barren women who have in many instances been needlessly deprived of the realization of maternity. Conservation as regards the ovaries was hardly an established practice when the almost wholly unjustifiable practice, except in an infinitely small percentage of cases, of sacrificing the uterus in pelvic inflammation was originated, and is now becoming the popular practice. The simple fact, as demonstrated pathologically, that an organ once the seat of a septic process may never resume its normal condition, does not argue that it must necessarily be removed, providing that it does not affect the health and comfort of its possessor. The fault is not with pathology, but with the failure to associate living pathology with clinical study and the processes of repair.

Nature has long been recognized as the great physician; the interpretation of her methods and the application of means conducive to their furtherance is the true province of the physician. The relationship that the surgeon bears to humanity is necessarily the same, so that the ablation of any part of the body not in anticipation of the designs of nature is unscientific and unwarrantable. The ambition of surgeons to originate methods and establish their practice must be held responsible for practices which are often deleterious to the best interests of our science, and yet, as history will verify, that only time can eradicate. The origination of methods has in the past had very much to do with advancing the orig-

inator up the ladder of fame. We occasionally hear the query, What has he originated? And though it may have been a very inferior mutilative method, like a new religion, it is usually favorably received and a following established, its originator thus being in line for recognition as a producer of something.

The ease with which a method may be practiced has very much to do with the establishment of its popularity, the wisdom of its practice ofttimes being nearly, if not altogether, lost sight of. The advent of the Trendelenburg position and the large incision, the so-called vision surgery, rendered abdominal hysterectomy comparatively easy of accomplishment. The completeness and beauty of the method of supravaginal hysterectomy by the aid of the Trendelenburg position, in inflammatory conditions of the appendages, has a charm connected with it which may overshadow the necessity of the procedure. Operative display at the expense of sacrificing an organ or organs, thereby not conserving the best interests of woman, cannot receive the sanction of conscientious surgeons.

It may be observed that those who have not adopted the Trendelenburg position, but practice largely the methods of the late Lawson Tait, of England, or Joseph Price, in this country, do not recognize the necessity of sacrificing the uterus in pelvic inflammation. The performance of abdominal hysterectomy without the use of the Trendelenburg position requires considerable skill, and I am of the opinion that the average operator, under such circumstances, would not find it necessary to do hysterectomy as a routine practice in pelvic inflammation.

When the vaginal route is selected through which to operate in pelvic inflammation, the uterus is often sacrificed in obtaining room through which to successfully remove the inflamed appendages. This procedure in pyosalpinx is probably a necessity, in quite a percentage of cases, regardless of the pathology existing in the uterus. A vaginal route, except for

drainage, in pronounced cases of pelvic inflammation, does not admit of the performance of conservative work. In selected cases of chronic pelvic inflammation the anterior colpotomy incision can be used to advantage, if one is quite sure of the diagnosis. The operator who operates exclusively through the vaginal route in pelvic inflammation has but little regard for the conservation of the uterus, often sacrificing it in order to the better reach and enucleate a pus tube, when the opposite tube and ovary, with the uterus, could have been conserved.

A large portion of the vaginal work in pelvic inflammation must be classed as destructive mutilative procedures, which save life at the expense of the woman's sexual organs.

The suprapubic route offers superior advantages in doing conservative work in pelvic inflammation, the operator being afforded an opportunity to inspect the different structures, to tie off and break up adhesions, and cover raw surfaces. Drainage in cases demanding it should be made into the vagina through an opening in the pouch of Douglas. However, if the removal of the offending organs in pelvic inflammation is to be our dictum, then there can be but little preference as to the route to be selected.

As life-saving measures, the methods in vogue of dealing with pelvic inflammation are certainly nearly all that could be desired. However, we cannot speak so flatteringly of the post-operative sequelae. When, at the time of operation, the woman is suffering pain, and her life is in danger, she only thinks of immediate recovery, and readily consents to any surgical procedure that will offer her a prolongation of life, and it is only after the acute danger is passed that she begins to realize that she is not as other women. The morale of women of a sensitive nervous system, produced by the knowledge that their uterus and ovaries have been removed, is accountable for very much of the nervous depression and melancholia that so often follows ablative work of this character.

Arguments in Favor of the Conservation of the Uterus.—(a) The uterus will recover, at least symptomatically, in the larger percentage of cases if the appendages are properly operated upon and the uterus properly treated. This will usually imply the conservation of an ovary or a part of an ovary, ofttimes the conservation of a tube and an ovary, or a part of an ovary. A thorough curettage of the uterus should be practiced in every case of pelvic inflammation, and drainage established. Adhesions between the uterus, intestines and omentum, must be broken up, abraded surfaces covered or seared with the cautery, and, if necessary, some of the numerous methods of correcting backward displacements should be practiced. We have an abundance of clinical evidence coming from absolutely reliable sources showing that the uterus is not responsible for the post-operative pain following operations for the cure of inflamed appendages, but that such pain is generally due to the stumps of the tubes, non-absorbable ligatures, and to intestinal and omental adhesions. (b) The removal of the uterus weakens, to a marked degree, pelvic support, and changes in the length and contour of the vagina ensue. Cystocele and rectocele have been frequently observed to follow hysterectomy. When total ablation of the uterus and appendages is practiced, atrophic changes take place in the vagina, as in elderly women; also a form of vaginitis has been frequently observed. (c) It is known that when the ovaries are removed the uterus, after a variable period of time, undergoes atrophic changes similar to those occurring at and following the menopause, only usually more rapid, and that such changes rather favor resolution in the metritic uterus. There is no true reason that resolution will not occur in the inflamed uterus, if properly treated, as it possesses natural drainage, and there is an abundance of clinical evidence to show that it does occur in the larger percentage of cases. There are many eminent gynecologists who have been prominent as operators and teachers before and since the introduction of the practice of removing diseased appendages, who have never

removed the uterus in pelvic inflammation. (d) That it is reasonable to conclude that woman can perform the sexual act with more satisfaction to herself and husband when she is in possession of sexual organs. That while it is probably true that the pleasure of the act is largely psychical, yet the sexual organs are particularly involved in the accomplishment of the act, its completeness depending to some extent upon their possession. That it is necessary to preserve the sexual function in married women, so as to avoid marital unhappiness and divorce, is affirmed by the number of divorces following the work of the gynecologist. (e) An ovary or a part of an ovary and, as well, a tube can be conserved in a large percentage of cases of pelvic inflammation, thereby avoiding an artificial menopause, and when the uterus is also conserved maternity is possible, and the woman has the satisfaction of not being unsexed. The results of the operators who are doing conservative work upon the sexual organs of woman are certainly quite satisfactory, and the scientific principle involved in their work is certainly deserving of emulation.

Dr. Frank R. Oastler gives a report of one hundred and fifty conservative operations, mostly under his own supervision at Dr. Cragin's private sanitarium, New York City, in which he states that "The results were most gratifying." "The report of these cases of conservative work extending over six years emphasizes the following facts: (1) That the symptoms indicating operations are removed in a vast majority of the cases, secondary operation being rarely required; (2) that symptoms of the artificial menopause do not occur; (3) that menstruation continues, though sometimes diminishes in amount; (4) that pregnancy results in about one case in five; (5) that marriage relations are not interfered with; (6) that women preserve their identity and are not relegated to the realm of 'its.'"

A. Palmer Dudley* reports one hundred and ninety cases

* Jour. of the Amer. Med. Assoc., Vol. 36, p. 357, Aug. 10, 1901.

of conservative work upon the ovaries, with the following results: One hundred and thirty-seven cured; 11 suffered some pain with menstruation; 42 cases were unheard from. Out of the 148 cases heard from, 28 became pregnant; 23 were delivered at full term, while five miscarried. Quick recoveries when applied to the average American women are not necessarily so imperative, especially if a longer convalescence means the conservation of her sexual organs, with the possibility of maternity.

Conclusions. — I deem it incumbent upon those of us who practice the radical method of removing the uterus in pelvic inflammation to show just cause for our practice. It must be shown from clinical evidence, gathered from every available source, that the pathology in the uterus in pelvic inflammation is so extensive that resolution does not occur, and its presence is a menace to the health and comfort of its possessor, regardless of palliative measures. It should be shown that the results extending over a period of five years prove: (a) The general physical condition of the patient is better on account of the removal of the uterus; (b) that the nervous symptoms are not greater than where the uterus has not been removed; (c) that there is very much less post-operative pain; (d) that sexual coitus is as satisfactory to both husband and wife as where the uterus has not been removed; (e) that the larger percentage of cases makes shorter and better recoveries in every way where the uterus is removed.

I feel quite sure that the average radical operator would not sanction the practice of his method in the case of his wife or sister, but would advise conservatism where possible with them. The average woman is desirous of retaining her reproductive organs, and it should be the province of the truly scientific gynecologist to make every effort to conserve them, as none should possess a better knowledge of their worth to the woman than he.

I am inclined to the opinion that gynecology has taken on a little too much surgery, to the almost total exclusion of other

methods of treatment, therapeutic measures having been almost excluded from the gynecologist's armamentarium. The sources of pelvic infection will, in all probability, continue, and women must be the victim. It should be insisted upon that she receive prompt prophylactic treatment, so that the number of cases requiring the radical removal of the appendages will become fewer.

A course of inquiry, covering a period of five years, should be made into: (1) Cases in which conservative work has been done upon the uterus and the appendages; (2) cases in which the uterus and appendages have been removed; (3) cases in which the uterus has been removed and conservative work done upon the adnexae; (4) cases in which the appendages have been removed and the uterus conserved.

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The following conditions should be inquired into at the end of each year: (a) physical condition of patient; (b) character of pain complained of; (c) condition of the mind and nervous system, change in disposition, and her ability to enjoy the ordinary pleasures of her particular condition of life; (d) condition of the pelvic floor, vagina and bladder; (e) ability to perform the sexual act, and the presence or absence of sexual desire.

A further inquiry should be made of the husbands of the women operated upon: (a) Changes in disposition of wife; (b) changes in sexual relation, satisfaction or dissatisfaction with the act.

Through such a course of inquiry it would be possible to arrive at the truth as to the effect of the different methods of operating, both as to immediate results and post-operative conditions. The future comfort and happiness of woman must be considered, as well as her immediate prospect of recovery, when an operation is decided upon and a method chosen, thereby, and thereby only, conserving the best interests of our science and the welfare of humanity. The report of a few cases where, after double oophorectomy, the uterus was found to occupy the retroposed position, was septic and

painful, requiring removal at a subsequent time, has been brought forward as an argument for the removal of the uterus as a routine method. The judgment of the surgeon as to his ability to conserve organs in pelvic inflammation is always to be utilized, and an error in judgment should certainly have but little influence in establishing a method of practice. If the uterus and appendages are considered by the surgeon as hopelessly diseased, at the time of operation, a radical operation should be performed, that is, the removal of the uterus and the appendages.

We are of the opinion that such cases are comparatively rare; that the uterus and a part of an ovary can be conserved in the larger percentage of cases. The convalescence where conservative work is practiced upon the uterus and adnexae may be longer, but the condition of the patient, as to her future usefulness and ability to enjoy life, is greatly enhanced by the preservation of her sexual system.

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THE CONTROL OF HEMORRHAGE IN THE REMOVAL OF PELVIC TUMORS.

By Herman E. Pearse, M. D., Kansas City, Mo.

In the removal of pelvic tumors, control of hemorrhage is the hardest problem we have to solve. It is always present. Adventitious vessels of large caliber are found in unexpected places due to the enlargement of unimportant branches. The protection of the urinary system is a constant problem. Danger to the bladder or ureter is ever before us. Danger of laceration of a bowel is always present. But all of these are practically unvarying problems; they must always be considered. Should accident happen at any of these points its repair can be attended to with some degree of leisure, not so with the question of hemorrhage. A tumor has been delivered; adhesions have been to some extent severed—search is being made for its other important attachments, when it is noted that every sponge is crimson and every space is filling with red blood. Like the proverbial bolt of thunder from a clear sky comes the swirling, rushing, welling of blood from the pelvis when a vessel of large size, low in the pelvis, has been opened. The operator needs all his courage, all his knowledge of anatomy and pathology, all his fertile resource gathered from years of experience and study, all his manual deftness and dexterity ready at his instant command to cope with such an emergency, and even then he may lose the battle if he be taken unawares, and has not cool courage and intelligent ability.

The best way to control hemorrhage in the removal of pelvic tumors of the female, is to search out and control the

vessels that are the source of hamorrhage, as early as may be in the operation. Blood supply will be found to proceed from two superficial sources, and from several deep sources. The first superficial source is the ovarian or deep spermatic, arising from the aorta or renal artery in the lumbar region and passing downward to the brim of the pelvis which it reaches, opposite to the upper edge of the broad ligament. This is the first artery to be secured in uterine or ovarian tumors, and generally in broad ligament cysts and intra-ligamentous growths the same rule holds good. The second superficial source of blood supply comes from the funicular, and round ligament, or the superficial spermatic artery. This is unimportant in normal condition, but being given off from the anterior branch of the internal iliac or from the superior vesical, which in turn is derived from the anterior branch of the internal iliac, it offers an easy means of collateral circulation when the ovarian and the uterine are tied; its orgin is but a short distance from the orgin of the uterine and is from a common trunk.

The deep sources of blood supply are the uterine artery principally, and after that, enlarged branches from the sciatic, obturator and anterior branch of the internal iliac. The uterine is easily secured, after tying or clamping the ovarian, by cutting down toward the base of the broad ligament where it lies. If the operator secures the uterine artery to the inner side of the ureter, *i. e.*, after the vessel had crossed the ureter in its course from its origin at the internal iliac to its distribution in the uterus, he will be required to control the cervical artery, which is given off from the uterine just before it crosses the ureter. It is well therefore in controlling hemorrhage from the uterine artery to lift the bladder strongly forward, so as to put the ureter on the stretch and follow the artery to a point one-half inch beyond the ureter before securing it.

When the tumor is ovarian and the entire ovarian portion of the broad ligament is its pedicle, much may be granted by

a preliminary ligature about the top of the broad ligament at the uterine cornu embracing the anastomosis between the ovarian and uterine arteries, and then securing the ovarian as mentioned before at the pelvic brim, just beyond the fimbria. Such tumors do not as a rule (unless sarcomatous or tubercular in character) attract blood supply from deep lying arteries. After such ligament or clamping, as has been outlined, an ovarian can be cut away leaving the two peritoneal edges of the broad ligament lying in reasonable close apposition with perhaps one or two slightly bleeding points. The vessel will be found in the two stumps, one at the pelvic brim under the colon and one at the uterine angle. The peritoneum can then be sewed. This is safer and more desirable than a large stump ligated en-masse by a heavy cable of silk penetrating the pedicle and tied "both ways."

When the tumor occupies the uterus (as a fibroid of that organ), the ligation or clamping should take place at the two points of superficial blood supply on each side (the ovarian and the round ligament) at once upon commencing the operation. The broad ligaments can then be divided part way down, and the mobility of the tumor tested. Toward whichever side it can be most easily rotated, it should be sharply drawn. This puts the broad ligament on the stretch. The bladder is then separated quickly from the uterus, and the broad ligaments, and lifted up. This puts the ureters upon tension. The broad ligament is now cut away upon the tense, stretched side until the uterine artery is felt. It is followed by blunt dissection out beyond the point where the cervicle is given off and secured. Bladder and rectum are now separated from the tumor as the remainder of the broad ligament is cut away. The vagina is cut about the cervix, and a sponge packed promptly into the opening. The broad ligament on the other side now permits of easy access to the remaining uterine artery from below. The vessels that furnish the supplementary deep supply (the vaginal, the branches from the middle vesicle and from the inferior hemorrhoidal) should be tied; too

much blood is lost in disregarding them. In removing a tumor in such a manner the whole procedure is orderly. There is absence of hemorrhage, as all sources are found and secured before being invaded.

In carcinoma of the cervix when hysterectomy must be done, it is much better done in the same manner in so far as ligation of vessels is concerned, except that after tying the uterine on the tense side, the uterus is pulled over to that side and the artery tied on the opposite side in the same way from above. The broad ligaments are now cut away, bladder and bowel are now freed from the uterus, and from the upper two inches of the vagina; all hemorrhage is secured, and the uterus and tumor are freed from all connections; the uterus with its appendages is now thrust into the pelvis and into the outlet, the vaginal tube "telescoping" and the growth appearing outside the body. The pelvic peritoneum is now sewed closely up, and the abdomen closed. Passing about to the foot of the table the operator cuts away the tumor, uterus and adnexa by one sweep of the knife about the vagina. There is no hemorrhage by this method of hysterectory, and no contamination of pedicle and stumps as in every other method vaginal or abdominal.

In preparation of this paper I have used the terms "secured," "clamped or ligated," etc., purposely, as there are several recognized methods of securing a vessel once the plan of approach and the technique of procedure are established. We may profitable consider the angiotribe, the thermoclamp, the pressure clamp, and the ligature, the latter again embracing catgut, silk and the wire snare or serre-neoud.

The Angiotribe. — This is a method of crushing the tissues of the pedicle under enormous pressure by means of lever and screw. The arteries and veins are obliterated, the whole being compressed into one mass of solid amorphous tissue by the tremendous pressure exerted. Its advantages are that it can be always used without depending upon electric current, or other accessory and is moreover unbreakable. There are

no ligatures or other foreign bodies to slip or to be left as an irritant and to cause trouble at some future day. We all know the evil effects caused by heavy cable silk ligatures at times when they have been left in the abdomen. In fact Dr. Morris of New York has said that it requires two surgeons to write history of buried ligatures and sutures: one who puts them in, and one, at some future day when occasion demands and the patient and former operator are far apart, who removes them. I have in the Woman's Hospital to-day a woman awaiting operation for the removal of pelvic mass that is piled about a cable silk ligature put on six years ago. Such results are avoided by the angiotribe, and its adherents and advocates claim for it that no case of secondary hemorrhage has occurred. I cannot speak from personal experience as I have preference for another method to be later described.

The Electro-Thermoclamp.—In this instrument we combine the crushing power of a strong clamp with the hardening and sessicating power of the electric heating current. As in the case of the angiotribe I have not used this instrument but have witnessed its use in many cases. In the amputation of the appendix and its meso-appendix; in the separation of vascular adhesions; in the severing of pedicled tumors, etc., this instrument has done, with my knowledge, good work and I expect in future to find uses for this and for the last described. As in the case of the angiotribe, no foreign body is left and the stump is in the best possible condition for absorption, at least theoretically. The instrument is a valuable one.

Pressure Clamps.—This is an old and ever valuable means of securing a bleeding vessel and needs no explanation from me. I will only say that occasions will arise, at rare intervals, it is true, when it becomes necessary to clamp a vessel and leave the clamp in place for twenty-four or thirty-six or even forty-eight hours. The very heavy clamps are no longer used and we find the slender strong clamp the best. Half

a dozen or more should be at hand in every case of tumor removal, to be used in case of emergency.

The Serre-Noed or Snare.—The practice of throwing a wire about the base or pedicle of a tumor, attaching a serre-noed and screw and constricting the pedicle until hemorrhage is impossible, has been known since the beginning of surgery. It is still, with the modern improvements in instrument and wire material, a valuable agent, and I rarely attempt the removal of a tumor without having such an instrument at hand.

I use it less each year, as I become expert in analyzing the blood supply of the tumor and securing it in advance of my work. I have still had occasion once this year to employ it and I know in that case it saved life. The objections to its use are:—

1. The prolonged convalescence occasioned by the slow separation of the stump.

2. The formation of sinuses and fistulae.

3. The pain of subsequent dressings and pressure of pins, etc.

Ligatures.—In my opinion this is the best method yet devised for control of bleeding vessel, or one that is to be controlled prior to severence. I will not attempt here to settle the old war between the advocates of silk and catgut as ligature materials except to say, that personally I always use a well-selected, well-prepared cat gut that has been chromicized to last ten days or more for pedicle work in the pelvis. It is freely absorbed. It is always sterile. It is flexible and easily tied. It does not make a foreign body. It can be applied where no form of angiotribe or thermo-clamp can be applied. It is as strong as silk and as flexible with none of the disadvantages of the latter.

I use in my best work the Van Horn Catgut prepared by Van Horn & Co. of New York. When I prepare it myself I do so as follows: I select strong flexible gut of good color and new manufactured and soak it in a 4 per cent aqueous

solution of formalin for 48 hours. If it is desired to make it last ten days I add 15 to 20 grains of potassium bichromate to each pint of solution. The formalin is washed out by placing the gut in a bowl and allowing the water to enter the bowl from the bottom and overflow. The water is left running for 14 to 24 hours.

The gut is now rolled up in small bundles and wrapped in gauze and boiled for fifteen minutes. It is then laid in alcohol for one day to remove the water and stored in absolute alcohol.

Clean surgery is necessary, an accurate knowledge of pathological anatomy as applied to the vessels of the pelvis. A cool head and a strong steady hand must pick out the sources of blood supply and ligate in advance of cutting. A second ligature should be put on the stump of important vessels after the tissues have retracted from the cutting. By this means hemorrhage is controlled and avoided. The clamp and wire will save us in case of accident.

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DISCUSSION.

DR. W. B. DORSETT, St. Louis: I didn't hear the first part of Dr. Wallace's paper, but the first thing that attracted my attention after I came in was the diagnosis of tubal rupture. In my experience I have seen but one case in which it was possible to make a diagnosis before rupture. We know that one of the first things that call to our attention the existence of extra-uterine pregnancy is a history of sterility. In all the cases that I have operated upon there has been a history of sterility of from 4 to 9 years. I have seen two cases which were curetted when there existed extra-uterine pregnancy but which was not recognized at the time. The flow of blood and the discharge of decidua was the cause of the mistake in diagnosis. In one case the physician called to see the patient and thought he had a miscarriage of eight or nine weeks. She had a history of hemorrhage which was copious, a discharge more or less offensive which had existed for two or three days and he imagined there was something there so he grasped the uterus and pulled it down and scraped it out. In the course of 48 hours the woman had a terrific hemorrhage into the abdominal cavity. I saw the case a few days afterwards and made an incision in the cul-de-sac and the first

thing that came into view was the fetus. In another case the uterus was curetted and they succeeded in stopping the hemorrhage. In the course of a few hours hemorrhage again occurred and she was curetted again at which time it was discovered that extra-uterine pregnancy existed.

All scrapings from the uterus should be examined microscopically particularly in a woman giving a history of sterility. The reason of sterility is due to the fact that there is some trouble connected with the integrity of the tube which never allows the ovum to gain access to the uterine cavity. There is only one thing to do for extra-uterine pregnancy with hemorrhage, in my opinion, and that is to operate. I don't include those cases of abdominal pregnancy where the fecundated ovum goes through the fimbriated ends and adheres to certain structures.

I want to say a few words about ventral fixation. The rule as laid down in Kelly's book is to fasten the posterior wall of the uterus to the abdominal wall, a complete tipping up of the uterus. If we look over the histories of trouble in labor where a ventral fixation had previously been made we will find they were all done by the Kelly method. I have delivered four women, one of them twice, in whom I had previously fixed the uterus to the anterior wall and none of them had any trouble. If we fasten the anterior wall of the uterus to the anterior wall of the abdomen we give it a chance to grow and dilate whereas if we fix it to the posterior wall we are bound to have adhesions and cause distress at parturition. The Trendelenberg position is the only position in which to place a woman when operating on the abdomen. The indication for operation in inflammatory disease must be according to each particular case. I believe in the vaginal incision where there is a large collection of pus in the cul-de-sac but I regard it as only a temporary measure and the tubes can better be reached through the abdominal wall than through the vagina if located high up. I know some favor taking out the uterus and I second Dr. Campbell's remarks in regard to the conservation of the uterus. In the case mentioned where there was a large collection of pus in the cavity and pus tubes, there was no necessity for taking out the uterus. Simply because the uterus is in a state of subinvolution does not mean that it should be removed. I have a case now in which a quart of pus was taken out and both ovaries removed but the uterus was saved and the patient never had a temperature after the operation.

Dr. Knight, Perryville: In regard to ventral fixation there is one point to be considered. We get the most happy results by ventral fixation in those cases where the ovaries have been removed and the uterus is left rolling about in the pelvic cavity. This is not a pleasant thing for the woman, besides we are apt to have a cystocele or a rectocele. No rule can be laid down for these cases. They must be treated according to the merits of each case. I don't agree on the whole with the remarks of the Doctor on conservation of the uterus for sometimes there is extensive sepsis. At others there is no return but a total obliteration of the organ.

DR. H. C. CROWELL, Kansas City: I was unable to hear all of Dr. Campbell's paper and did not hear any of Dr. Wallace's, but that which I heard impressed me as possessing much merit.

In regard to fixation methods there is little doubt that nearly every gynecologist has tried all of the methods suggested and I for one desire to place myself on record at this time, that, in my opinion, there is but one natural ligamentary support which we can easily attack which serves best to maintain the uterus in a natural anteverted position, viz.: the round ligaments.

The real support of the uterus is the utero-sacral ligament, but it is not easily shortened though some are now claiming to do so. While I do not favor the Alexander operation I do believe that some of the round ligament operations best serve the purpose for the reason they allow of more natural movement to the uterus and in gestation undergo hypertrophy and permit of the natural rising of the uterus in the abdominal cavity. Fixation of the uterus is a method of choice only, to be employed when we have added to a retro-displacement a prolapsus. In regard to sacrificing the uterus I believe there are times when it is not only justifiable but offers the only chance for saving life. Those cases of infection of the uterus occurring in the puerperal period, cases in which the walls of the uterus are studded with foci of pus, should be extirpated though the mortality will be very high. In those cases where we have double pyosalpynx the uterus had better come out, the convalescence is doubtless better. If the infection is gonorrheal then little regard need be paid to the pus, even if spilled it does not imply that we must drain, for the effect such as it is will be a localized adhesive inflammation.

DR. JACOB GEIGER, St. Joseph: I am glad to hear the sentiment voiced in regard to conservative surgery. I wish this conservative practice would extend a little further than the tubes and ovaries. Twenty or twenty-five years ago the most emminent men in our profession held back and believed that pus in the tubes and ovaries could be drained, and were drained, and the patients get well. I don't know why this organ was so much sacrificed and so often removed. There are three pathological conditions which would justify the removal of this organ — and not always then — namely: fibroid, carcinoma or gangrene, which is found only occasionally.

I was glad to hear Dr. Cordier state emphatically the excellent results following the use of the Paquelin cautery. I have used this for a number of years, to such an extent, indeed, that my work has been severely criticised as crude and unscientific. I have had a similar experience to Dr. Cordier's in prolonging the life of the patient, some of them have been alive many years and are still alive after being treated in this way.

DR. A. H. CORDIER, Kansas City: I want to emphasize that phase of Dr. Wallace's paper in which he insists upon an early diagnosis of malignant disease of the uterus. If the diagnosis is made early and the case operated on at once, before there is extensive involvement, it will result in quite a percentage of cures, but if the case is permitted to go on and the operation

performed late there will be a large majority of returns and they will prove fatal. In the last few years I have not resorted to operation where the disease is on the wall. Instead of this I curette and go way down to within a safe limit of the bladder and rectum and then use the cautery. I believe by this we can prolong the life of the patient and I have had no recurrences in the last two or three cases. I feel that this method is just as safe and will bring about as good results and the patient be as comfortable as if I performed hysterectomy. I insist that injections of potassium permanganate be continued through life once or twice a day. This keeps down infection, diminishes the amount of secretion, allays pain and prolongs the life of the patient beyond a doubt.

In regard to the methods of controlling hemorrhage I generally use silk. All in the world that is necessary is a dishpan full of water, a good fire, and in fifteen minutes it is ready for use. It is an animal tissue of course and if it gets infected there is danger of a sinus.

Dr. F. G. Nifong, St. Louis: I simply want to second Dr. Pearse's remarks about the use of catgut in the control of hemorrhage in the pelvis or elsewhere. I have no use for silk in any place where it might make trouble when we can have absolutely sterile absorbable catgut. In the Mullanphy Hospital where I serve we never have infection from catgut and we always feel perfectly safe because the gut is cumolized by our own hands. However, preparing successfully by the cumol method is difficult and not practical for all, requiring special apparatus and great care. There is a very simple and practical method of preparing gut devised by Elsberg of the Mt. Sinai Hospital, New York. After extracting the fat from the gut, wind tightly in a single layer on glass spools, fixing both ends of the gut through a perforation in the end of the spool. Boil from 15 to 30 minutes in a saturated solution of ammonium sulphate, rinse off salt in sterile water and place in desired preserving medium. The albumin of the gut is said to be coagulated or "fixed" by the ammonium sulphate and boiling is possible without softening or destroying the gut. I have used this gut with satisfaction and it has an advantage over others in that it can be quickly prepared by the surgeon himself on a cooking stove. A practical point for a country surgeon.

Dr. C. Lester Hall, Kansas City: It is very gratifying to me to see the trend manifested by the speakers in their special work. The ideas expressed are not new to me and those who know something of my writings in regard to this question, know that conservatism has been one of the issues I have fought for. Dr. Campbell is not afraid of surgery, and not afraid to remove a uterus, and when he says it is proper to conserve as much of the sexual organs of the woman as possible, I think he voices the sentiment which we should all feel. I believe too much radicalism has been done. I read a paper before the Sec. Obs. and Dis. of Woman Am. Medical Assn., 1897, on "The Destiny of Vaginal Hysterectomy for Malignant Diseases," in which I took the position occupied by Dr. Campbell. The chairman of this Association will recall a case in which I assisted

where the cancer involved only one lip of the uterus, not involving the adnexa, in which a hysterectomy was done, and the woman appeared to be perfectly relieved, yet the growth returned in four or five years. I have no doubt that if this operation had been a simple curettement and followed by the use of permanganate of potassium — though I don't see why, as Dr. Cordier suggests, we should subject the woman to use it all her life — the woman would have lived longer than she did. The difficulty is that the surrounding tissues are infiltrated, and any cutting process will simply invade the healthy tissue and carry the infection beyond.

Dr. J. C. Morfit, St. Louis: I believe from the reports coming in as a result of a new treatment of malignant growths on the body surface that next year will give us a great adjunct in the post-operative treatment of malignant growth in the pelvis. I refer to the use of the X-Ray. Most cases of malignant disease come too late for benefit from operative procedures.

I didn't hear all of Dr. Wallace's paper, but I highly commend the remarks of Dr. Campbell. I believe he has rightly stated the position of the gynecologist as it should be to-day, taking the ground of reasonable conservatism and operate only when there is a reasonable hope of putting the patient in a better condition. We should not remove a healthy organ simply because its mate is diseased any more than we should amputate a leg simply because the other was taken off. I reported a case some two years ago of extra-uterine pregnancy in which two years previously I had removed the right tube for a pus accumulation. I left probably half an inch of the uterine tube. Two years subsequently there formed in the stump an extra-uterine pregnancy. At that time the second operation was an argument to me in favor of removing both tubes at the first operation, but that would not have been warranted because the left tube and ovary were normal. What should have been done at the first operation is a complete exsection of the offending tube including the crown of the uterus, which I invariably practice now. We want in gynecology to-day radical conservation but not conservative radicalism, and we are learning over again that all gynecelogy is not surgical, but much of it, particularly the ills of young girls, belong to the internal medicine man with his tonics and hygiene, and not to the eager operator ever ready with his curette.

Dr. Lanham, St. Joseph: I have found that in sending scrapings of the mucous membrane to histologists for examination and diagnosis they make their statement from a purely histological standpoint. If specimens were sent to the best histologists in the United States I would venture the statement that nine out of ten would differ in their statements. I believe that physicians should pay more attention to the clinical part of the diagnosis, and think they will do better work for their patients.

Dr. C. H. Wallace, St. Joseph: As to the cautery knife in operative measures upon uterine cancer, it seems from the drift of the discussion I was misunderstood both by Dr. Geiger and Dr. Cordier.

I suppose it be a universal custom among surgeons to follow curettage in operable cancer by thorough cauterization — this has always been my custom.

The point I meant to emphasize in my report was the use of the cautery knife in abdominal hysterectomy in the early and operable cases of uterus cancer, as practiced by Dr. Byrne, of Brooklyn, N. Y. The results reported by him are far ahead of extirpation by the knife, in that it destroys the cancer amaeboe and leaves no raw surfaces for reinfection as is possible by the scalpel.

DR. O. B. CAMPBELL, of St. Joseph: I feel like complimenting my friend, Dr. Wallace, for his very able report on the progress of gynecology. There are some points that have been discussed by the members present and some other points that really deserve some discussion.

I will refer to vaginal incision in pelvic inflammation. The statement by Dr. Wallace as regards vaginal incision and drainage during the acute stage of pelvic inflammation, was suggested by Henratier, of Chicago, though some New York man had previously mentioned it. Dr. Henratier, of Chicago, brought out the fact some years ago that inflammation of the tubes and ovaries with general pelvis inflammation, during the acute stage should be incised and drained. Price, a few months ago, read a paper condemning vaginal incision in pelvic inflammation, though I cannot agree with all he said. Whenever pus is present I believe it ought to be evacuated. The objection to incision and drainage in the acute cases, is there is danger in such treatment, for if we have a streptococcus infection it may spread that infection. I have operated on one case, and the only one in which the incision was made during the acute infection because of the pain complained of which was due to adhesions. The ovary and tube on one side were much out of place, and there were fibrous bands around the cecum and sigmoid flexure, obstinate constipation and the small intestines adherent to the posterior wall of the uterus.

Referring to Dr. Cordier's discussion in reference to inoperable cases of cancer of the cervix involving the vagina. I recall a statement made by Dr. J. M. Baldy at the American Medical Association last year, that the report of the Johns Hopkins Hospital that 20 per cent of cases of cancer were cured was found to be false, and that most of the cases ought to be operated upon in their early incipiency, I believe the method of Reis, of Chicago, in cancer of the cervix and of the fundus, to be the most promising method yet brought out, viz., abdominal hysterectomy and removal of the pelvis lymph glands. I had the pleasure of seeing Dr. Reis do his operation without a fatality in three cases.

DR. CORDIER: Is it not a fact that Dr. Kelly originated the method some years ago?

DR. CAMPBELL: I do not know or I should be glad to answer that question. I do know that Dr. Reis claims priority and that he is using the method in every operable case of cancer of the cervix and fundus. I think that the cautery can be responsible for a great many deaths and we have

no right to trust to the cautery alone, when we have better results from other methods. Dr. Cordier's report of a cure in three inoperable cases of cancer of the cervix from the use of the cautery, is quite remarkable. The doctor should allow no grass to grow under his feet until his cases are placed upon record.

DR. H. E. PEARSE, Kansas City: I believe Dr. Cordier is right in urging that we should be careful in making a complete vaginal hysterectomy for carcinoma of the uterus unless we remove all of the infected area, and that includes more than we can usually remove in cases that are at all bad. Where a vaginal hysterectomy is undertaken for carcinoma the operator violates all the rules of operative surgery by making an incision for the control of the blood supply alongside of or through the infected area. We should open the abdomen and take the blood supply from above in cleaning the abdominal cavity and then separate the uterus from its bladder attachment and the broad ligament attachment and go wide of the cervix and push the uterus down into the pelvic cavity without having cut through the walls of the vagina and allowing a chance for infecting the field of operation. Then close the peritoneum snugly; then go to the vulva and we can cut through the vaginal wall and the cancerous mass has never been near the field of operation.

In regard to catgut, I said in my paper that when we use a ligature, whether silk or cat gut, it is first placed on the vessel while the tissues are on a tension and a second ligature should always be placed behind the first. If you cannot tie a knot in catgut, so it wont slip, you cannot tie silk so it wont slip. The only post-mortem in death from hemorrhage I ever held was on a patient who died from hemorrhage from a silk ligature about the stump. The second ligature is the safeguard.

REPORT ON PROGRESS OF MEDICINE.

By R. T. Sloan, M. D., Kansas City.

If the sensational dictum of Prof. Koch, concerning the relation between human and bovine tuberculosis, shall be verified in the near future, then the British Congress on Tuberculosis which met in London last year will mark an epoch in scientific medical research. The belief had been fixed in the minds of most of our profession, that the etiologic factors were the same, and for this belief to be suddenly pronounced a delusion, aroused mingled feelings of wonder, doubt and resentment. Prof. Koch's paper at that meeting has excited a keen controversy over the question, and will certainly stimulate experimental and laboratory investigation to a marked degree. If his belief is proven to be correct, there will be excited sufficient skepticism concerning many of our present notions of etiology, to still further encourage inquiry in that direction, where patience and persistence will discover the truth. The foundation for the prevention and cure of disease must rest upon a knowledge of its cause, and brilliant results cannot attend our future efforts at therapeutics, and prophylaxis, except as a result of thorough etiologic research.

In his paper read before the British Congress on Tuberculosis, Prof. Koch described experiments which convinced him, — "that human tuberculosis differs from bovine, and cannot be transmitted to cattle." Reasoning that, if the ingestion of flesh, milk and butter containing bacilli of bovine tuberculosis could result in infection of human beings, *primary intestinal tuberculosis* should be of frequent occurrence, he then cites statistics to prove the rarity of this

affection. To determine whether a case of primary intestinal tuberculosis is of human or bovine origin, he recommends that a pure culture be made and inoculation of cattle practiced with it. He concludes that if a man is really susceptible to infection by bovine bacilli, such infection is a rare occurrence, and hardly more frequent than hereditary transmission; he consequently denies the wisdom of attempting to prevent it.

While he modestly suggests further experimentation to prove or disprove the correctness of his claims, his utterances bear the stamp of his own absolute conviction; for he must know that they will be used as arguments for the discontinuance of municipal inspection of tuberculous cattle, and that, if he is wrong in his belief, his statements are very far-reaching in their dangerous possibilities.

It is interesting to note that Prof. Behring in his new work on tuberculosis, states that bovine and human bacilli are identical, but modified by environment. Dinwiddie, Frothingham, and others suggest that prolonged change of environment may so alter the tubercle bacilli as to greatly affect their virulence.

Prof. Koch naturally claims that the sputum is the main source of infection, and recommends education of the public as to the danger of infection, and the means of preventing it. He justly proclaims against routine methods of prophylaxis, and urges special and more rational efforts at prevention in the case of each infectious disease according to its individuality. In tuberculosis, he recommends obligatory notification concerning all cases which are a menace to family or neighbors, thorough disinfection, and finally the establishment of hospitals and sanitaria as a means of more successful treatment of tuberculosis and also as an aid in diminishing the prevalence of the disease.

Pertinent to the matter of the relation of prophylaxis to etiology, is the result of investigations made by Drs. Reed and Carroll of the U. S. Army concerning yellow fever. While discrediting Sanarelli's bacillus as the microbic cause,

they report experiments proving that the mosquito (*culex fasciatus*) acts as the intermediate host of the parasite, and transmits the disease by biting, first a patient, aud then a non-immune. They report that the period of incubation, according to their experiments, varies from 41 hours to 5 days 17 hours, and that the infection is not conveyed by fomites. Therefore, instead of fumigation or destruction of clothing, the evident necessity is to quarantine against or to destroy the mosquito.

In the case of malaria, active warfare on the mosquito habitats, by drainage of swamps, and the use of kerosene oil, has resulted in greatly diminishing the number of cases of malaria in certain localities, and individual protection against the anopheles has been found to be an excellent prophylactic measure. So, too, the knowledge that rats are carriers of the infection in bubonic plague, directs the efforts to arrest the spread of that dreadful disease, and imposes less arduous quarantine restrictions upon the unfortunate patient.

W. J. Class has discovered a diplococcus which he and others believe to be the etiologic factor of scarlatina. Several investigators think they have discovered, or are upon the eve of discovering the microbic cause of malignant growths, though as yet no claims of the kind have been established. Meltzer, of New York, has applied the name "paratyphoid" to a disease described by Kurth, Schottmüller and Gwynn, presenting the clinical course of typhoid fever, but not giving the Widal reaction for typhoid. Nevertheless, the serum of a patient promptly produces the agglutinative reaction in bacilli obtained from the blood and excreta of the patient. This fine differentiation suggests the future possibility of distinguishing etiologically between various types of what we now call rheumatism, not including the well-known varieties of septic arthritis.

There has been a gradual decline in death rate from many infectious diseases, for which the medical profession, more or less justly, holds itself responsible; but what of the

increasing prevalence of nervous diseases, of kidney and heart affections, and why does pneumonia vary so greatly in the frequency and virulence of its epidemics? The answer is a sealed book which the laboratories of the chemist, the physiologist and the pathologist must open. They are our hope in solving these and other great problems of disease, just as they are our valuable allies in effecting a diagnosis, and especially in confirming one already made. And yet one may lean too much for support upon laboratory diagnosis. While occasionally indispensable, and often of great value when used in conjunction with older clinical methods, if used alone, its findings, accurate though they may be, are often misinterpreted and therefore misleading. Its too frequent use, like that of the differential diagnosis, is apt to render one less keen, less observant; one is too prone to look for a few *prominent* symptoms upon which to make a diagnosis, instead of eliciting by more searching investigation, a larger but correlative group of facts with which to facilitate a *direct* diagnosis. Without intention of decrying the differential method, it must be said that it is not likely to be so accurate, and its use is certainly not so instructive as the direct method.

Undoubtedly, in recent years, the greatest progress in diagnosis has been made in the laboratory, while occasionally a new symptom or physical sign has been recorded and added to the list of ordinary clinical measures. Examination of the blood has made possible the differentiation between the various anaemias and separated Hodgkin's disease from lymphatic leukaemia. It facilitates the diagnosis of malaria, relapsing fever, filariasis, and septicaemia, and has made the phenomenon of leuco-cystosis a valuable diagnostic sign and a guide to the surgeon. The Widal blood test has given us new ideas concerning atypical typhoid, and the application of kindred tests has been of more or less diagnostic value in other diseases.

A more recent diagnostic measure is found in cryoscopy of the blood, — the determination of its freezing point. It is based upon the theory that a liquid containing dissolved impurities freezes at a lower temperature in proportion to the amount of impurities contained. Normal blood is found to freeze at 0.56 degrees C. below zero, its variation being only .01 degree from .55 degrees to .57 degrees below (Kümmell, Münchener Med. Wochenschrift, Oct. 30, 1900). If, however, elimination of effete matter is insufficient, the freezing point is lower, and may be as low as —.71 degrees C. This lower freezing point is regarded as indicating renal insufficiency, and not only affords information as to the progress of kidney diseases, but furnishes a guide to the surgeon who contemplates operating upon a patient having renal disease and requiring operation. The test requires Beckmann's apparatus, in which the blood is defibrinated, though the freezing point is said to be the same whether the fibrin is removed or not.

Lumbar puncture was introduced a few years ago as a means of determining the presence and etiology of meningitis but later was added to the list of therapeutic measures, temporarily affording relief from pressure and diminishing toxaemia, and possibly stimulating absorption. The procedure is not devoid of danger, inasmuch as some deaths have been reported, most of them being cases of tumor near the base. Its latest use has been in producing spinal anaesthesia.

Kernig's sign, — the inability to completely extend the leg when the thigh is flexed at right angles to the trunk, has proved to be a very valuable diagnostic sign of meningitis. It is rarely found in other conditions, though a few observers have reported such exceptions. The writer has seen this sign in one case of a relapse in typhoid with pronounced cerebral irritation. It is often absent in infants, less frequently in adults, and is very valuable when present.

Another sign, which, though valuable in older patients, is of no clinical significance in infants under six months, is

Babinski's great toe phenomenon. It consists of the extension, instead of the flexion of the great toe, when the sole is stroked, and usually indicates disease of the motor paths of the cord, which it may differentiate from toxic irritative conditions. It is said that it may sometimes be seen in rickets.

Koplik's spots have been found, when sought, in 75 to 90 per cent of cases of measles. They are rose-colored spots with a minute, bluish-white center, found on the buccal mucous membrane, and appear from one to five days before the general eruption. They are considered pathognomonic when found.

The Roentgen rays have been utilized with considerable success in the diagnosis of aneurism, enlargements and displacements of the heart, in pulmonary tuberculosis, pneumonia, emphysema, and in cases of air or fluid in the pleural cavity. Its most valuable diagnostic application (for the internalist) lies in the determination of early tuberculosis of the lung, not by the shadow cast by the infiltration, but by observing the restricted excursions of the diaphragm, and the X-Ray appearance of compensatory emphysema at the base; thus it would appear that extra-resonance low in position, rather than apical dullness, should constitute an early sign of pulmonary tuberculosis. Unquestionably it may be used to advantage in determining the size and position of the heart as altered by disease or therapy, but the great expense of apparatus will continue to greatly restrict its use. On the other hand, we have at command a means of diagnosing tuberculosis which is comparatively inexpensive, and yet is not in general use, namely tuberculin. Of inestimable value in the diagnosis of doubtful cases, it is surprising that its use by the general profession should be so limited.

The last decade has witnessed startling activity and innovations in therapeutics. It has been a busy time for the synthetic chemist rather than for the druggist. The market has been flooded with pharmaceutical preparations galore, but

a review of them would be impossible, even were it desirable in a report of this kind; and it might be said parenthetically, many of them should not be included in *any* report on progress except to a board of trade or a commercial club. It has been a period of attempts at specific medication, marked by distinct though small success; the packing house chemist and the bacteriologist have each furnished us with therapeutic measures of more or less value, and the employment of certain ones of these, supplemented by a wholesome recognition of natural and physiologic aids, has constituted the real progress in the treatment of disease.

Thyroid extract has been successfully employed in the treatment of myxoedema, cretinism, parenchymatous goitre, and with diet as an adjuvant, in obesity. Preparations of the suprarenal glands have been used in the treatment of Addison's disease with temporary benefit occasionally, though as a rule the results have been disappointing; nevertheless the gland has been found to possess wonderful therapeutic properties. Saml. Floersheim, in the *N. Y. Med. Jour.*, May, 1901, summarizes the effects of 3 gr. doses of the dried, powdered gland, taken in capsules and chewed and dissolved in the mouth and swallowed without water. He used it in 82 cases of heart disease with distinct benefit, and comments upon the rapidity of its action, the maximum effect being obtained within 5 minutes, and the effect lasting from 5 minutes to 3 hours. He reports benefit from its use, after the failure of strychnia, digitalis and nitroglycerin, and alcohol. While noting no effect in organic heart disease when the pulse was strong and regular, he records relief in tachycardia, dilatation, and in weak and irregular heart's action. E. A. Peters (*Lancet*, March 2, 1901) reports the use of local applications of a 10 per cent solution of suprarenal extract, with distinct benefit in the relief of pain in various mucous surfaces, and in one case of scirrhus of the breast, — in the latter case relieving the suffering better than morphia for nine hours. Takamine claims that his preparation, "Adrenalin,"

is one thousand times as strong as the extract, that the one to one-thousand solution is a sufficiently powerful haemostatic for all operative work upon the nose, and that the one in five or ten-thousand solution is strong enough for ordinary local medication. It seems evident that the suprarenal gland has properties that are distinctly tonic and stimulant to the heart and blood vessels, and probably to the general muscular system; and that, among those properties, is a haemostatic power exerted by no other drug. It has been suggested that it might be useful internally in morphine poisoning, on the strength of its being a stimulant to the respiratory center, in threatened collapse in anaesthesia, and in postpartum hemorrhage.

Preparations from various other glands of the body have been used, with a view of obtaining a specific effect in pathologic conditions supposed to be, in part, at least, dependent upon the absence or lost integrity of certain internal secretions; for example, the pituitary body has been administered by Sidney Kuh in two cases of acromegaly, with some appearance of success. But in the majority of cases, the results have not been attended with sufficient success to establish these preparations as useful therapeutic agents.

The introduction of antitoxin for the treatment of diphtheria gave a new impetus to attempts at specific medication, and since the profession first appreciated the brilliant results of this plan of therapy, it has made every effort to extend its application to other infectious processes, with, however, indifferent success. The value of the anti-diphtheretic serum is incontestable, and only the size of the dose is a matter of controversy. The remedy, when pure, being comparatively harmless, there has been an increasing tendency on the part of the profession to employ larger doses, but according to Wright and others, the dose should vary according to the extent and location of the lesions, rather than the size and age of the patient. Reviewing the statistics, however, one is impressed with the idea that the beneficial effects depend

rather upon the *early* administration than upon the size of the dose.

Later reports are not such as to arouse enthusiasm for the treatment of tetanus with antitoxin. In acute cases, recoveries following its use have been pitifully few; while in chronic cases more or less success has attended its administration, occasionally comes a report of the unsuccessful treatment, by antitoxin, being followed by a successful resort to older and better understood remedies.

The fact that in so desperate a condition as septicaemia the physician is ready to grasp at anything that may offer a possibility of success, probably accounts for the continued employment of the anti-streptococcus serum in this condition. Certainly the many incomplete and unscientific reports of its use do not compel acceptance of the early claims made for it. Nevertheless, the literature is not altogether barren of authentic instances of this infection in which the anti-streptococcus serum seems to have exerted a positively curative effect, and it is not improbable that the remedy if used promptly and in sufficient quantities may prove to be a valuable adjuvant to the orthodox eliminative and supportive treatment.

Scarlatina and typhoid fever have been treated with serum, but without notable results. On the other hand, inoculation with sterilized cultures of typhoid bacilli has been practiced by Cayley, Wright and Parry, whose reports seem to indicate a decidedly protective value.

The treatment of lobar pneumonia presented a most alluring field for experimentation with serum, especially in view of the fact that with the older methods of treatment, practically no satisfactory progress had been made. The remarkable variations in the mortality rate, depending upon age, previous condition and habits of the patient, upon mixed infections and other complications, and especially upon undoubted variations in virulence of the microbic cause, have made statistics an ineffective argument as to the virtues of any thera-

peutic method, and it must be acknowledged that statistics have been few concerning the use of this serum, and in those, the results have not been very striking.

The current literature shows a revival of interest in the treatment of tuberculosis with tuberculin. On account of the improper use and too great expectations of the remedy, a reaction had set in and its use had become very limited. More recently good reports have been received concerning the success of this treatment when reinforced by hygiene and other rational measures. Its advocates recommend it only for incipient cases, before the development of any febrile movement, — cases that do well under proper hygienic and climatic conditions alone.

At the British Congress on Tuberculosis, the "home treatment," the "sanitorium treatment," and the "climatic treatment" were liberally discussed. The home treatment is usually a matter of necessity on account of the small means of the patient. But as between the other two modes of treatment, each had its friends at the Congress, though the opinion of the majority seemed to be that climate and altitude played a very subordinate part in the treatment. While granting all the virtues and benefits of the sanatorium treatment that its advocates claim for it, nevertheless, one who is familiar with the dry, sun-lit air, and dry, porous soil at the foot-hills of the Rockies, who has seen the restoration to health of patients obliged to live and work without the strict regime of sanatorium discipline, and who has witnessed the wonderful results in the way of improvement and sometimes cure of advanced pulmonary tuberculosis, with mixed infection, — solely as a result of prolonged stay in those high altitudes, — is compelled to attribute to climatic influence a greater possibility for good than the sanatorium alone can offer. In any plan, the greatest desideratum is an abundance of fresh air.

The medical profession has ever encouraged the use of athletics as a means of bettering or preserving the health.

The gymnasium and the bicycle have been of service, but we came to learn their limitations and their harmful possibilities. Physical culture is becoming generally recognized as a means of preserving body-tone as well as of eliminating disease. Hydrotherapy as a scientific method of treatment is now universally appreciated by the profession all over the world; massage likewise maintains its place as a valuable therapeutic measure in selected cases; and it is within the range of possibilities that physiologic therapeutics in the line of systematic muscular movements, such as must bring into play muscles not much used since infancy, will be regarded as a still more potent factor for good than either of these.

The X-ray treatment of superficial carcinoma, lupus and several minor skin diseases, is but one of the therapeutic applications of light. Prof. Niels R. Finsen, of Copenhagen, in 1893, recommended exclusion of chemical rays (ultra violet and violet) from the rooms of smallpox patients, interposing for this purpose dark red glass or several thicknesses of red cloth. He claims as a result of this treatment, little or no suppuration, and hence lower mortality and less disfigurement; he recommends beginning the treatment early as possible and continuing until the vesicles have all dried up. Soendsen, Backmann and Feilberg reported cases, reducing pain and rendering the cases more mild. Finsen claims that the chemical rays of the spectrum increase the intensity of erythemas of any kind by dilating the capillaries. He treats lupus by concentrated chemical rays (ultra-violet, violet and blue), which are bactericidal. He condenses the light with mirrors and lenses, but excludes heat rays (ultra red, red, yellow), as much as possible. Electric light may be used instead of sunlight. Recognizing the blood as a great obstacle to transit of chemical rays, he suggests excluding it as well as possible by compression of the area under treatment. The penetrating power is very limited, but in superficial maladies, such as lupus, cutaneous epithelioma, acne, and noevus, Finsen reports "positive results."

Electricity has not been the last of natural forces to fall into the list of therapeutic agents, but hitherto it has been very limited in its application to internal medicine, the chief exception being its employment in neurology. It may be premature to forecast the possible benefits that may follow its use in the future, but when one considers the advanced theories of scientists concerning electricity, and its effect upon cell life, who can say that the researches of Loeb and others will not place this powerful agent upon a therapeutic plane not yet reached by any other method of treatment?

INFECTIVE CELLULITIS.

By Chas. G. Geiger, M. D., St. Joseph.

The subject of infective cellulitis, on account of the intensity of the symptoms and the large areas involved, is both of great pathologic and therapeutic importance. I wish to report three cases that have come under my observation within the last year. It is seldom that a physician has the opportunity to report his own case. With your permission I will state a case in which I was the patient. I was taken ill April 2, 1901, with violent tonsillitis and pharyngitis which continued for forty-eight hours, at which time a rhinitis developed and had several profuse hemorrhages from nose, losing as much as a pint of blood at a time. My physician recognized extension of the disease through the lachrymal ducts, and twenty-four hours after a slightly swollen condition of the skin was noticed on inner canthi of both eyes at the orifices of the lachrymal ducts, which rapidly traveled over the face, head and extending over the surface of the body, down as far as the waist. On the fifth day I became delirous and continued so for ten days. Temperature ranged from 103 to 105¾. About the twelfth day it was thought that I could not live, as I went into collapse, but thanks to the persistent efforts on the part of my physicians and nurses, the patient still lives. During the time of great depression, which lasted ten days, I could not take food because of gastric irritation, but was given frequently of brandy and strychnine.

Locally, ichthyol from five to fifty per cent with glycerine was used. Your attention is directed to this case on account

of high temperature, extent of surface it involved, and the seat of the onset.

Case 2. W. B., age 32, who had been working in a packing house, was taken ill about the first of last June. I was called in consultation about the 9th or 10th of the same month and found patient suffering with a violent, diffuse inflammation of the cellular structure of the entire dorsal and lumbar regions, extending to the axillary line on either side with three or four foci of suppuration over the surface of part affected. We had the patient removed to the Ensworth Hospital, where we laid open the suppurating parts and found that the entire connecting tissues were in a gangrenous condition and later was removed in large sloughs. His temperature ranged from 102 to 105 F. During the first week in the hospital, he had all the symptoms of septicaemia. We irrigated the diseased parts freely with normal salt solution once a day and applied gauze wrung out in a two per cent hot carbolic acid solution covered with oil silk; gave the patient strychnine quinine with the free use of milk punch, eggnog and whisky slings to stimulate and nourish him; patient recovered.

Case 3. Mr. A. H., age 34, retail butcher, while trying to catch a street car, struck his leg, knocking off a bit of the skin at junction of middle of the middle third of right leg over crest of tibia. He consulted a physician who dressed his wound, but infection followed and I was called about the sixth or seventh day; found the small wound highly inflamed with red lines, outlining lymphatic vessels of leg and thigh, these lines extended to groin, and the inguinae glands were swollen and very tender to the touch; patient had temperature of 105 F. with profuse sweating and with other symptoms of blood poisoning. I at once ordered cathartics and supportives, and gauze wrung out in two per cent solution of hot carbolic acid to be applied locally, and covered with an impermeable material; this was continued for three or four days; patient now has developed two or three foci of sup-

puration over part affected. I then ordered patient to be removed to Ensworth Hospital, affected parts were incised freely, after which normal salt irrigations were used. Large sloughs of skin and cellular structure took place, as are shown in these photographs. Quinine and strychnia were ordered in large doses with brandy, eggnog, milk punch and whisky slings were also very freely administered during the depressed stage; patient recovered.

Regarding the cause of suppuration in the tissues we are still considerably in the dark. The streptococcus pyogenes causes in man inflammation which for the most part, but not always, assume a purulent character. Occasionally they are found in the sound mucous membrane; for example, in the upper air passages or in the vagina and cervic uteri, and from this fact it is supposed that either its virulence is slight or the mucous membrane offers successful resistance.

When the streptococcus spreads in the corium it utilizes the lymph spaces and the lymph vessels as pathways and breeding places and causes a more or less severe inflammation which may be recognized microscopically by an advancing reddening and swelling of the skin which is known as erysipelas.

The spread and multiplication of cocci in the subcutaneous tissues give rise to a spreading sero purulent and fibrine purulent inflammation, often with subsequent suppuration of the tissues; these forms of infectionare designated as phlegmons.

The danger of a streptococcus infection depends upon the severe progressive local disease and upon the intoxication by means of toxins, which find expression in the fever and severe systemic symptoms. The streptococcus pyogenes is the most common cause of suppuration. The bacillus coli communis is capable of causing degeneration and inflammation in various tissues.

The bacteria of erysipelas may not only bring about erysipelas of the skin, but are able also to produce suppuration or inflammation of the lungs. According to recent development

bacteria are not the only agencies which call for clean surgery. There are other things of greater significance in prognosis than these living organisms. Bacteria can be neither the sole nor the final cause of disease. We know that various species of germs exist beneath the epidermal surface, yet even with everything favorable for infection, bacteria in situ, trauma, temperature of 37 degrees C., blood and serum and the presence of oxygen, absolutely nothing may occur. From our knowledge of bacteria such inaction in the presence of every favorable agency is highly paradoxical. On the other hand, after most rigid asepsis and antisepsis, we do get infection, and we are absolutely in the dark as to the source of the infecting agency. Now it is a fact that the same pyogenic cocci are found over and over in the most various suppurative processes, phlegmon, boil, carbuncle, bubo, peritonsillitis, etc. It is usually claimed that these clinical variations of disease depend upon different degrees of virulence of the microbes, yet that simple explanation will hardly suffice to account for the great diversity of clinical manifestations. Some of the individual affections being rare and others of every-day occurrence. On the other hand, we have clinically acute progressive gangrene, lymphangitis of several types, abscesses, phlegmon, erysipelas, furuncle, carbuncle, acute fat necrosis, pyothrobosis purulent oedema, pure diffuse inflammatory oedema, lymphtrombosis, bubo, and opposed to all these varieties of wound infection, what do we find bacteriologically? Just the same staphlococci and streptococci and bacillus coli over and over again, in no apparent relationship with the variety and severity of the affection. What are we to think when we see a surgeon infected professionally, develop diffuse lymphangitis on one finger and a true furuncle with fat necrosis on the other? In each lesson was found both the staphlo and streptococcus, lessened resistance of the tissues, number and virulence of bacteria are insufficient to account for these great clinical variations. When we come to the picture of general infection, we are

still in a domain of paradox, not only the vulgar staphlo and streptococcus bnt nearly every sort of infectious germ appears to be able to cause pyaemia, septicaemia, embolism, etc.

It is not my purpose to discredit bacteria as pathogenic agencies, but simply to insist that we must invoke other and unknown factors before we can throw much light on the nature of the wound infection. Especially will it be necessary to explain what is meant by the term, weakened resistance.

The danger comes from two sources, namely, from septic intoxication and local phlegmon or gangrenous destruction. Each is, therefore, to be combated so far as possible. We all know that there is no specific internal treatment for this disease. Years ago, tr. chlorid of iron was long valued as such, but if it has any good qualities at all it only acts as a supportive, and cannot be given in all cases on account of deranged condition of the stomach. Our results depend a great deal in keeping the excretory organs in good condition. If the patient is much prostrated tonics and stimulation is of the greatest importance. If along with prostration there occurs restlessness and delirium, then anodynes and hypnotics are most serviceable and should be administered to meet the indications. The administration of bichlorid of mercury, salol or something else of this character has been recommended, which is supposed to act as a germicide, but I doubt their virtue in this regard. Strict attention must be paid to the nourishment of the patient, only giving the patient food that is easily digested and assimilated. In mild cases simple soothing lotion such as lead and opium will suffice locally, but in the more severe cases, we find that the application of resorcine or naphthaline, ichthyol, creolin and carbolic acid in ointment or lotion act most admirably. I have found in some cases that mild antiseptics as boracic acid do good work. Should abscesses form, they should at once be freely opened

and irrigated thoroughly with normal salt, or some may prefer a mild antiseptic irrigation, as lysol and creolin, two per cent solution, which is very good; when we have suppuration there is nothing that will give the good results locally, as hot carbolized applications covered with oil silk or some impermeable material to retain the heat and moisture.

SENILE DEGENERATION.

By C. A. Mitchell, Blythedale, Mo.

A negative is often more expressive than a positive. Often we can more readily prove a positive by using its negative. Life, and the forces that perpetuate life, is the all. To lengthen the chain of life, and yet retain the strength of the last link that is forged to the normal strength of the whole, has been an incentive to research, for the cause of the negative condition to life from Hypocrates, down to the present time. So we will now consider the negative of youth and vigor, life and its elevating, ascending, advancement, senile degeneration, its causes, and its effects. Degeneration is only a decay, a hardening and an atrophy of tissues, a shriveling and drying up of the vital organs. Senility is a term we apply to those only in their dotage by reason of the weight of many years resting heavily upon them, and adding the prefix (pre) to those cases who cannot count their years by a multiple of scores, as though the trembling limbs, the silvered locks, the wrinkled and furrowed skin, the deafened ear, the dimmed vision, is only a condition, instead of viewing these physical effects from their physiological causes, or the physiological changes that are being wrought, either through hereditary influences, or through overwork in laudable pursuits, or from the abuses of nature's laws, and the vices that follow closely in the wake of such abuses, or from the accidental causes that are beyond the knowledge or control of man. To avert the physiological effects of senile degeneracy, as had been averted by the antediluvians, the account of which has been handed down through the traditional to the historical

ages, that perhaps led the ancient philosophers to seek for the fountain of youth, which fountain they believed had been lost by the great flood of waters, that they thought a few had unwittingly laved in and drank of its limpid waters, and thus had perpetuated youth and vigor, for was not "Moses an hundred and twenty years old when he died; his eye was not dimmed, nor his natural forces abated." In the seventeenth century, the great Harvey gave an account of one Thomas Parr, who died in 1635, at one hundred and fifty-two years of age, whom he dissected, and found no evidence of decay in any organ: attributing his untimely death, even at this advanced age, to the change and environments of the last twenty years of his life, to wit, from that of the simple life and habits of a peasant, to the luxurious life, as the pet of the court of Charles the First of England. The question then would naturally arise, at what age may we most likely expect to see the effects of senile degeneracy? The answer at any age of atrophy, and tissue decay, we may truthfully call senility, or senile degeneracy, or when the repair through the process of assimilation, is less than the waste through the exertions of the body. Thus we find the salivary glands, the gastric juices, the pancreas, the mesenteric glands, the lymphatics, and in fact all of the secretory organs, are undergoing anatomical alterations, with functional changes, causing an asthenic, or atrophic condition of the assimilating vessels. Now let us turn to the causes of these troubles. It is caused from cell weakness. Cell weakness may be caused from hereditary tendencies, brain injuries, or overwork. The investigations of Luaiani and Marchi, upon dogs and monkeys during life by partial extirpation of the cerebellum, then examined after death. The joint conclusions are that the middle lobe is of no greater functional importance than the lateral lobes of the cerebral hemispheres, that the different portions of the cerebellum have the same function: "That of a relatively independent reinforcing organ to the whole

cerebro-spinal system with a demonstrable athenic, tonic, static, and trophic action." We next find the functional effects showing on the mentality, the brain cells have hardened so that acquisitions are beginning to cease, he is losing his volition, he is incapable of collecting, or compiling his thoughts, with the precision he once did, auto-suggestion is beginning to weaken and partial amnesia is noted. If we watch the physiological changes, with its physical effects, we will see that mental degeneration has progressed until we have either a harmless ward, a violent lunatic, or a criminal on our hands, and often regarded as such even if he is not responsible by having lost all, or nearly all, volition. His promptings to action are from suggestion, or outside influences. His self-care is lost with his volition. He is veritably a child again. Before degenerating to this condition, he should have had the affection and painstaking care shown him that a child craves, and demands. The physiological changes are not complete, neither will the mental change be complete. His mentality may be more acute at times than was formerly normal, these stages of mental acuteness which are so deceptive to the laity, and even sometimes we, the members of the medical profession, will attribute it to a highhanded play for effect's sake, instead of delving deep into his previous history and environments, as well as his family history, back a number of generations, until we find that heredity, that atavism, is more responsible for his condition and his condition responsible for his actions. Or again, go back from the question of heredity to that of brain lesion, an asthesia of brain cells, which is the prime cause of another class of degenerates. This lesion has been so mild in its onset, so slow of action, that we fail to note its changes, with the effects which would follow such changes, until we have a case on hand that is beyond our aid, or power to relieve. One may safely say that there is not a community which has not its senile degenerate, either in its mild or grave form.

Either class of cases is like a contagion, effect to a greater or less extent all who come in contact with them. The finer sensibilities are blunted, confidence is lost in fellow-man, morals are perverted, — and such perversion is the bane of society. Morals is that deportment toward, that true due regard for, that sense of right, that charity of justice, that sympathy, that levels all distinction of man to man.

SUBJECT: AUTO-INFECTION, AUTO-PHAYISM AND AUTO-INTOXICATION.

By C. W. Watts, Fayette, Mo.

CAUSES.

1. Procrastination.

2. Violation of natural laws of nature, body, mind and spirit.

3. Haste in digestion, mastication, mentation, alimentation and assimilation.

4. Perverted micrococci.

5. Lack of proper co-ordination.

6. Reflex, oral respiration, inverted respiration and expiration.

7. Paralysis of peristalsis.

8. Absence of presence of mind in defecation, constipation and obstipation as sequences.

7. Appendicitis is often the result of irregularities as of small seeds, etc., in the appendix.

8. Trying by spasmodic effort to hasten defecation which in part is a reflex act.

9. Urination—Defecation and respiration are only in part under control of voluntary nerves; they go on sometimes when you are comatose or locked in the arms of Morpheus.

10. Why are women more subject than men to auto-infection? Because their habits predispose to it.

Are they subject to relief by proper curatives? Yes, to a great extent, corrective. Curative remedies are hygienical, surgical, mental and medical.

1. A correct, intelligent observance of all the fixed laws of nature — Dame Nature.

2. Insistence upon correct, regular hours for attention upon our duties to respiration, defecation and urination.

3. A due respect and regard for aseptic and antiseptic precautions and conditions.

4. It always pays to be prompt, obedient, wise, sensible and submissive to Dame Nature.

5. To the *vis a tergo* and *vis a fronte*.

6. Surgical — when there is an offending tumor or traumatic cause that may indirectly be due to a prime cause of neglect.

Dame Nature admits no exception to her inexorable fixed rules of health, and he or she who violates them does so at his or her peril and safety.

7. She wisely has no favorites or exceptions, and demands a just observance of them all by all.

8. Perverts, idiots and infants require nurses to aid them in obeying.

Mental — Law of suggestion, moral and feelings.

Medical — Only when the cause is beyond repairs — this *vis naturae* — then the *vis* medicative or chirurgical.

Mental — Always necessary to a correct correction of any of these maladies.

PHYSICAL. — Massage; manipulations; suggestion and position as well as correct posture.

Hygienic. — Pure fresh air; exercise in the open air; pure water and food; rest and exercise to a degree not beyond fatigue.

Much more might be said with profit, perhaps, to all, yet enough has been said to develop thought along these lines — which is the only wish of the writer.

Illustrations of sad effects — furnished as object and subject lesson. Of auto-infection: Baron D. G., who, after a

life spent for the human family in investigations with microscope and culture of the "cocci" family; a man of echinococci celebrity, who died a *martyr*, and whose autopsy revealed the presence of the bacillus commure cili, etc., as a result of *reabsorption* in the colon and ilium of the effete materia morbi in his own intestinal *tract* by a total neglect of his own health and habits.

Of Auto-intoxication: In the case of the late Chas. G., of St. L. and J., who died from uremic septicemia as a result of *neglected* head inflammation, whose autopsy revealed in lateral sinuses of cerebrum and cerebellum *infection* by characteristic stephylococci and streptococci. Not early attended to.

Of Autophayism: In that wonderful man, Sir John G., who spent his life in his laboratory, studying with his glass the wonderful features of the micrococci family, neglecting self-attention, by working twenty hours in twenty-four, and living in protracted fasting, with a cracker and sandwich for his Sunday dinner, breathing and inhaling from the sponge ptomaines and cultures, the septic atmosphere of his lonely room — who now lives in the home of the insane in Vienna, a wreck, who is dying daily from effects of constipation, obstipation, and whose massive brain whose weight will prove beyond that of our Webster, of Germany's Bismarck, Paris and Crevoissier,— whose encephalon to-day contains the mightiest brain of earth as the sepulchre of the bacilli peculiar to that form of incurable insanity known as ramulmint.

Every surgeon and physician owes a debt of gratitude to these martyrs,— who gave their lives to establish the truthfulness of the germ theory — they can never repay, and the human family, the father apostle race of Adam, have had their lives lengthened, and established an oasis in the desert of life. Let us crown their brows with wreaths of immortality, and say "Requiescat in Pace."

DISCUSSION OF THE PAPERS OF SLOAN — GEIGER — MITCHELL.

DR. W. N. KEENER, Jamesport: I want to merely mention the benefit obtained from free incisions in cases such as Dr. Geiger reported. I think he did not emphasize this sufficiently. The staphylococcus does not seem to regard the anatomical organs as barriers to its progress, and the more it is pent up the more it seems to invade the surrounding tissues. Therefore, wherever and whenever a pocket of pus can be discovered, the tension should be at once relieved by free incision.

One feature of Dr. Watts' paper is the cure of constipation by suggestion. I believe this a natural way of curing that variety of constipation caused by neglect of the calls of nature. The process of defecation takes place by impulses of the sympathetic nervous system, and if we neglect these calls or impulses they gradually grow weaker and weaker and finally fail to call and the natural way to cure the condition is to strengthen the nervous impulses by keeping the mind constantly on the act.

DR. H. E. PEARSE, Kansas City: Referring to Dr. Geiger's paper, it seems to me there was a very prolific production of these cases of cellulitis last year, some of them very extensive. I want to indorse the last speaker's words in regard to free incision, and I will go beyond that and make free incisions in the early infiltrated stage before the introduction of pus. I am sure there is one patient in Kansas City who owes his life to free incision of the arm and forearm. The tissues should be incised not for the sake of the bacteria but to relieve the tension. If there is anything that breaks my heart it is to see a surgeon cut the blood vessels right and left in such cases thus cutting off the only chance for regeneration of the tissue. The incisions should be long and frequent enough and free enough so that an exit can be had for the product of the inflammation. After the incision is made I find no antiseptic agent so valuable as the newer salts of silver. I have taken argonin and saturated gauze with two per cent solution of this and covered the part thoroughly, then covered with rubber tissue so that I have a moist application and have had the best sort of results. For a year it was my pleasure to be associated intimately with our President and I learned from him something I have never forgotten, that is that when I wanted to use a systemic remedy the tartrate of iron and potash gave better results than the tincture of iron or anything else I have ever used.

DR. PEARSE: I said I used any of the soluble silver salts, not argonin alone.

DR. LEONARD, St. Joseph: Tuberculosis in the pre-tubercular stage is a question of nutrition. If we want to do the best to prevent the disease we should look after the proper nutrition of our patients, which is exercise, rest, etc. I believe we will do more in this way than by fighting the bacillus directly.

DR. GEIGER, in closing: I am very glad indeed to have heard the free discussion on my paper and much pleased that all the speakers are heartily

in favor of free incision of the parts. Of course we all know that no man can emphasize all important points in so short an essay. I do not believe much in antiseptics locally or internally in this disease. I think free flushing with sterile water or normal salt solution will do as much good as anything, it is not the chemical but the mechanical effect that is desired. Some claim good results following irrigation of a diseased part with a two per cent solution of carbolic acid; I doubt the efficacy of so weak a solution, and a stronger solution would be harmful. I know nothing of argonin as I have never tried it.

THE PURPOSES OF URETER-CATHETERISM—PRESENTATION OF URETER-CYSTOSCOPE FOR MALE AND FEMALE.

By Bransford Lewis, M. D., St. Louis.

The purposes of ureter-catheterism in connection with the cystoscope are twofold: For *diagnosis* and for *treatment.*

Diagnosis: A. To locate the origin of pus, blood, tubercular products or bacilli, the various pyogenic infections, abnormally desquamated epithelium, etc., as to whether they come from a, the bladder; b, the right ureter; c, the left ureter; d, the right kidney; e, the left kidney; f, the right or left peri-renal space and communicating with the corresponding kidney or ureter.

B. To recognize and locate obstructive conditions in the right or left ureter, from a, stricture; b, stone; c, adjacent tumors; d, bend or kink in the ureter from movable dislocated kidney; e, valvular junction of ureter and pelvis.

C. To determine, a, the presence of two kidneys; b, if only one, which is absent.

D. To determine, the number of ureters present.

E. To determine the functional activity of each kidney separately and relatively, with respect to its excretion of urea, albumin, quantity of urine; the specific gravity, etc.

F. To determine the size and capacity of each kidney-pelvis, with respect to, a, hydronephrosis; b, pyo-nephrosis; c, total obliteration of secreting kidney tissue.

G. If there be kidney disease present, to determine, a, if only one kidney is affected or both; b, if only one, which is the affected one; c, if both, which is the one more affected;

d, if removal of the worse one be advisable, is the other able to carry on kidney functionation sufficiently; e, if removal of one be advisable, and the other *is* capable of supporting life, will the operation remove the infection from the body, removing possibility of dissemination or recontamination.

TREATMENT: (A.) To enlarge narrowings or strictures at (a) the ureter openings, or (b) in the channel of the ureters. By facilitating drainage through the increased ureter caliber, thus obtained, to assist in the improvement of pyelitis, or pyonephronis, unilateral or bilateral.

(B) To irrigate and medicate (a) the ureters; (b) kidney pelves of one or both sides.

(C) To assist, by anaesthetizing and enlarging the ureter opening, the passage through it of a calculus or plug of pus, blood, etc.

To accomplish these purposes above described one must have an instrument that effects ureter catheterization easily and quickly without causing trouble to the patient or bad after-effects. I believe I have accomplished this result in the ureter-cystoscopes for male and female which I herewith present. The instrument consists, as you see, of a straight tube through which one looks directly at the object without the intervention of lenses and without the accompaniments of refraction, absorption of light, etc. The illumination is made by a cold electric lamp, which allows of the use of the cystoscope in the bladder without introducing water and without burning the patient. This obviates the difficulties coming from the clouding of the water, since air is used for distending the bladder. Air, of course, cannot be clouded by the inflowing of blood or pus in ways that destroy the transparency of a liquid vehicle.

With cocain anaesthesia, the process of ureter catheterization is easily accomplished in either the male or the female with this instrument. I have used it upwards of three dozen times this spring, mostly in my office, allowing the patients

to get up and leave immediately afterward and go about their business.

It has enabled me to accomplish something else, which I believe will be very valuable in cases of pyelitis; that is washing out the kidney pelvis in chronic inflammation of that organ, either unilateral or bilateral. I have done it in both the male and female in a number of instances. In three cases, which were the subject of chronic unilateral pyelitis, I washed out the affected kidney pelvis with marked improvement and no detriment.

The advantages in favor of ureter catheterism as compared with segregation are very great. In the matter of diagnosis, if one uses the segregator and gets tuberculous urine, for instance, from one side, and clear urine from the other side, he is still unable to say just where the tuberculous urine comes from — whether it comes from the bladder on that side or the ureter on that side, or the kidney pelvis on that side; whereas, if he catheterizes both ureters and gets tuberculous urine from one side he knows that it does not come from the bladder on that side. If he runs the catheter up to the kidney pelvis he knows that it does not come from the ureter but does come from the kidney pelvis, or kidney itself on that side. So that any diagnosis by the segregation method is a very inferior method in my estimation as compared with ureter catheterism. Of course one cannot do anything in the way of treatment of the ureters or kidney pelves by the use of the segregator, such as he can do by the use of ureter catheterizing methods.

One case illustrating another advantage of ureter catheterizing over segregation, is that in which I put the ureter catheter about four inches into the left ureter of a male patient. At first nothing drained, but on a strong aspiration with a syringe I was able to pump out a teaspoonful of pure pus that was not draining through the ureter, nor would it drain through the ureter catheter except under the influence of strong aspiration. This determined, of course, that there

was no drain of urine from that kidney — that there was an infected pus sac, which proved to be the case on our cutting down through the left lumbar region and finding a collection of more than a pint of thick pus, and a stone in the kidney pelvis on that side. The segregator, in this case, even if it had obtained the purulent urine from the left side and clear urine from the right side, would not have made the positive indication for operation that was made by the finding of a large collection of pus by the ureter catheter.

While the present instrument does not afford the ability to catheterize both ureters at the same time, I am having one constructed which will accomplish that purpose, that is the catheterism of both ureters at the same sitting, the drainage of both ureters co-incidently, allowing of comparison as to, not only the quality of urine, but the quantity as furnished by the two kidneys at the same time and under the same general influences.

627 Century Building.

DISCUSSION.

Dr. Ernest Mark, Kansas City: Two factors that to my mind have proven largely operative against successful ureteral catheterization have been the use of the Continental lens system and the presence of a liquid medium in the bladder. Those of you who are familiar with the lens system cannot have failed to have been impressed to-day by the enormous advantage afforded by the direct view of the instrument presented by Dr. Lewis. It is like a change from darkness into daylight. Again, the use of air as a dilating medium is of incalculable benefit.

In the treatment of ureteric and nephric conditions the use of a practicable catheterizing cystoscope opens up a wide field and one which has hitherto been hardly touched upon. Kelly, Pawlik and others have made use of the ureteral catheter for the purposes of treatment with results that are highly encouraging.

In the diagnosis of renal conditions ureteral catheterization holds a permanent and well recognized place; — so well recognized, in fact, that it seems out of place for me to do more than mention it here. There is one point, however, that I may be allowed to touch upon, — the existence of two kidneys. It would seem that we should have but little to fear in a nephrectomy from the absence of the other kidney, but Roberts reports

twenty-nine cases of solitary kidney while Ballowitz has made an extensive collection of similar cases. Again, in nephrectomy, the integrity of the other kidney is of the utmost importance, ureteral catheterization proving invaluable.

The two points that I wish especially to emphasize are the drainage obtainable by means of the catheter and the direct application of remedies to the diseased ureters and kidney pelves. With the introduction to the profession of such an instrument as this presented by Dr. Lewis I predict much work along these lines. It offers us much encouragement in the treatment of pyelitis, pyonephrosis, pyelonephritis, ureteritis and tubercular disease of the ureters and kidney pelves.

One of the most practical points of the cystoscope presented by Dr. Lewis is the cold light used. We know that one of the things that we have had to contend with has been the heat generated by the lamp. The light used in Dr. Lewis' instrument is practically cold and can be kept in the bladder for fifteen minutes and even longer without producing the least discomfort. It is in every respect a splendid instrument and I think the profession is to be congratulated on having such an improvement placed in its hands no less than is Dr. Lewis to be congratulated for having introduced it.

MEDICAL TREATMENT OF APPENDICITIS.

By P. S. Fulkerson, M. D., Lexington.

Until comparatively recent years, appendicitis as a distinct disease was unknown to the profession. It was then regarded as a local or general peritonitis, owing altogether to the amount of peritoneal surface involved in the inflammatory process. More recently, however, it has been found to be a distinct disease, an inflammation of the appendix vermiformix, and its causes, symptoms and pathology better understood.

In looking over the audience and seeing so many distinguished gentlemen, and especially so in the line of surgery, I fear that it may be considered cheeky in me, or perhaps be regarded as an effort to intrude medicine upon surgery, to advocate the medical treatment of appendicitis, since the consensus of opinion with the profession generally and especially so with the surgeon, is to operate as soon as the diagnosis is made out; in fact, in not a few cases, the operation comes first, after which the diagnosis is arrived at.

When I first entered upon the practice of medicine, I, like perhaps many others present, felt that what we gathered from authors and distinguished men in the profession should be strictly adhered to, kill or cure; but later on, our experience and observation at the bedside of the sick teaches us, to some extent at least, to think and act for ourselves. And the man who is not capable of doing this is not capable of practicing medicine and should "go 'way back and sit down."

During my professional career, I have seen case after case of typical and severe attacks of appendicitis recover without resort to an operation, and cases that, had they fallen into

the hands of the surgeon, would have been ripped open before you could have said "Jack Robinson."

There are doubtless exceptional cases when it is indispensably necessary to operate and operate at once, in fact is the only hope for the patient. But I claim that proper medical treatment resorted to early will obviate the necessity of an operation at least nine times out of ten, and there is not a medical man present who will not admit that, with all the precautions of asepsis and antisepsis, whenever you enter the abdominal cavity, there is more or less danger attending it. Such being the case, if a cure can be effected without the operation, the patient should by all means have the benefit of it.

Of course, appendicitis, like almost everything else that afflicts mankind, has a microbic origin. Chief among the germs that are said to figure in the disease, are the bacillus coli communis.

As soon as you are satisfied that you have a case of appendicitis to deal with, treatment should be resorted to at once. The old maxim that "Delay breeds danger" certainly holds good here. If at the expiration of from twenty-four to forty-eight hours after commencing treatment, there is a decided change for the better, and there generally is, the operation will not be needed. On the other hand, should it be necessary to operate, it is rarely performed under from twenty-four to forty-eight hours, consequently, as a rule, no time has been lost.

Whether catarrhal or ulcerative, the attack presents itself usually in a previously healthy person, and begins with sudden intense pain in the right iliac fossa, frequently localized at a spot known as McBurney's point, and is increased on pressure; the pain may radiate toward the umbilicus, epigastrum, groin, and other points; the pulse is usually accelerated and hard; fever soon develops, and usually more or less nausea and vomiting, the features express pain and anxiety. R. T. Morris, in the *Medical Record* of 1896, tells us that the temperature of the patient is a matter of no conse-

quence as giving any clue to the condition of the appendix. G. F. Shrady, in the *New York Medical Record* of 1894, tells us that danger may exist without being shown by pulse or temperature. Richardson, in the *American Journal of Medical Science*, says: "Too much stress must not be laid on temperature, as recovery may follow a temperature of 105 F. and death occur with one nearly normal." George F. Shrady tells us that notwithstanding nausea and vomiting are present in the majority of cases, they furnish no information as to the seriousness of the case.

Before concluding, I desire to report the following cases:—

1st case. I was called in consultation in February, 1891, the fifth day of the attack, to see J. D., attorney at law. Found quite a large lump in the right iliac region; suffering great pain and tenderness, frequent pulse with a temperature of 102; nausea and vomiting. Both the attending physician and myself felt that nothing short of an operation could afford any relief to the patient, but as the services of a surgeon could not be procured until the following day, we applied a large blister over the painful region, and greatly to our surprise the following morning found him decidedly better, pulse 98 and temperature near normal. The lump gradually disappeared and our patient had an uninterrupted recovery. Here was a case where an operation seemed inevitable, where every symptom apparently demanded it, and yet recovery occurred without it.

Case 2nd. Was called in January, 1892, to see J. M. He was suffering from pain in the right iliac fossa; tenderness on pressure; pulse and temperature indicating quite an amount of fever; bowels constipated. Moved the bowels freely with sulphate of magnesia and enema of hot water; applied a large blister over the right iliac region, and after it had drawn, he expressed himself as feeling much better; pain and tenderness greatly relieved; ordered hot poultices to be applied over the part; the case progressed favorably, and in a few days he was discharged.

Case 3rd. Was called in September, 1893, to see S. B. He was suddenly seized with severe pain and tenderness about the spot known as McBurney's point; pulse 100; temperature 102; bowels confined; opened them freely as I always do, and, as he was restless, used morphine hypodermically, and applied a large blister over the seat of pain; as soon as the blister had drawn and was dressed, he was greatly relieved and the improvement continued uninterruptedly until he was discharged. Right here, I wish to say that some of our authors are opposed to giving an opiate in appendicitis, for the reason, as they say, that you may so conceal the mischief that is going on, by the administration of an opiate, that irreparable mischief may be done before you are aware of it, but we must not forget that pain itself, long continued, may kill. After the bowels have been freely opened, an opiate, judiciously used, will allay pain and nervousness, subdue peristaltic action, relieve mental anxiety, reduce fever and render the patient decidedly more comfortable.

Case 4th. B. C., reporter for Lexington *Intelligencer*, was attacked with severe pain in the right iliac region, tenderness on pressure, pulse 100, temperature 102, sick stomach and occasional vomiting. Feeling that his stomach might reject other medicines, gave a full dose of calomel followed in a few hours with an enemia of hot water and epsom salts; medicine acted freely; ordered hot poultices to be kept up during the night; the following morning, learned that he had passed a bad night, pulse 120, temperature 103 and the pain almost unendurable; used morphine hypodermically, applied a large blister over the painful region; after the blister had drawn, pain and tenderness much relieved, pulse less frequent, temperature 100, recovery uninterrupted. He, however, resumed his duties too soon, had a recurrence of the attack, but a resort to the same treatment relieved him the second time.

Case 5th. Was called April 23d, 1896, to see F. C. K.; German. This was the evening of the fourth day of the attack; found him suffering pain at McBurney's point, a large

lump in the same locality, chilliness with fever and at times free perspiration; here was a case where an operation was inevitable. Dr. George Halley, of Kansas City, was called and during the operation a pus sac was opened which discharged freely at the time and continued to discharge through the drainage tube for some days. I am inclined to think had medical treatment been resorted to early, the operation would have been unnecessary. This, however, would have deprived the doctor of a good fat fee.

Case 6th. Was called November 2d, 1898, to see B. F. C., telegraph operator at Lexington, Mo. He complained of severe pain and tenderness, extending from the epigastric to the right hypochondriac region; the attack was ushered in with a chill, followed with fever; after opening the bowels freely, the pain and tenderness in the epigastric region was relieved, and instead he complained of pain and tenderness in the right iliac fossa; directed hot poultices to be kept on during the night; on my next visit, found him decidedly worse, temperature 103, pulse 120, nausea with occasional vomiting, pain severe and very restless; gave morphine hypodermically, directed a large blister to be placed over the painful region; soon after the blister drew, his condition had so much improved that I felt he had crossed the danger line, and such proved to be the case; after a reasonable time, he was able to resume his duties.

Case 7th. Was called in April, 1898, to see Virgil B., student at the Wentworth Military Academy. His attack was ushered in with chilliness, pulse 120, temperature 103, more or less nausea, bowels constipated; gave calomel and ordered an enemia of hot water and castor oil; bowels moved freely, ordered poultice over the painful part; on my return the following morning, found his condition in every respect worse and detected a small lump in the right iliac fossa; applied a blister and gave morphine hypodermically; ordered the poultices to be kept up continually and feeling that an operation was inevitable, telegraphed his uncle, who was his guard-

ian and resided in Texas, to come at once; in forty-eight hours, however, there was an improvement in his condition, and by the time his uncle arrived, he was so much better that the surgeon was deprived of his job.

Before concluding, I desire to say, and to emphasize it as far as possible, that the recovery of the cases here reported was the result of the early application of a large blister over the appendical region; and whilst the purgatives, poultices, morphine and other means resorted to, played a conspicuous part as adjuvants, the recovery of the patient was due chiefly to the blister, and I feel confident if resorted to early and treated in this way, operations will rarely be required.

The blister tends to relieve the congested and inflamed condition of the underlying tissues by its revulsive action, the sulphate of magnesia acts by stimulating the exhalents and producing copious watery discharges, and at the same time expels from the alimentary canal more or less poisonous material; the poultice, also, is a factor in relieving deep-seated congestion by relaxing the surface vessels and inviting an increased flow of blood to the part, while at the same time it is very soothing to the patient. I have no experience with the ice treatment in appendicitis, and, if you will pardon the digression, will add pneumonia also; and, believing as I now do, don't expect to have. Apply ice for any length of time to the surface of the body, and the part will become white as a cabbage leaf, for the reason that the ice constringes and contracts the capillaries of the part and drives the blood elsewhere; and should there be congestion or inflammation of any organ, it will necessarily get its full share. On the other hand, apply hot applications to the surface of the body, and the part becomes as red as scarlet, for the reason that the capillaries of the part are relaxed and the quantity of blood in the vessels thereby increased; and should there be an engorged and inflamed condition of any organ, it is relieved to that extent. In addition, the ice necessarily renders the patient uncomfortable; the poultice, on the contrary, has a

soothing and beneficial effect; and if I had to choose between the two, I feel that I would rather be burnt up by a fever than frozen to death by the application of ice.

It is claimed that ecthol is an efficient antipurulent and corrector of discrasia, and that its administration tends to prevent the formation of pus; that when an abscess is really forming ecthol often aborts it. Encouraged by the favorable mention of it by a number of medical journals, and in view of the fact that there seems to be an inherent tendency in appendicitis to end in the formation of pus, and as there can be no harm resulting from the administration of ecthol, should I meet with another case of appendicitis I propose resorting to it early and continuing its use throughout the treatment.

The cases I have reported are individuals living in and around Lexington to-day, with one exception. He died in Kansas City about three years after the attack of appendicitis with cerebro-spinal meningitis. And what seems remarkable, too, there hasn't been a recurrence of the attack in a solitary instance.

APPENDICITIS — SOME CLINICAL AND OPERATIVE CASES OF.

By A. H. Cordier, M. D., of Kansas City, Missouri.

In the early history of the clinical phases of appendicitis the discussions were mostly along the line of diagnosis. The question of typhitis, perityphlitis and other supposed pathological changes in the ileo-caecal region were discussed at length by the greatest medical minds of that day. Later these fallacies of those who maintained that the symptoms now recognized as those of appendicitis were due to a perityphlitis, etc., were dropped and the true condition was recognized and accepted by most surgeons and physicians. Then a new discrepancy developed in the minds of the profession, that is, how shall these cases be treated? Along this line there have been written more essays, and longer discussions have been held, and more varied opinions expressed than on any other problem ever before the profession for proper solution. That those entering into these varied discussions have been sincere and honest no one will deny. That there exists a want of unanimity is only too true. The lay papers ever ready to enter into scientific disputes have not made this disagreement an exception, and the vast amount of harm done, and the number of lives lost as a result of this source of information to the lay readers would be hard to estimate.

The diagnosis of appendicitis offers to the experienced physician very little difficulty. The determining of the exact location of the pathology in the appendix and the extent of that change is not so easy as a rule; however, in many cases the experienced surgeon can tell quite accurately the character

and extent of some of those changes before the operation. This uncertainty in foretelling the condition the appendix is in and how the case will terminate has led to the most bitter discussions entered into on this subject. It has led to one class of surgeons taking a position of waiting until what they call definite prognostic symptoms develop; while another class maintain that to delay is dangerous, as the so-called characteristic symptoms may not appear at all or be delayed until the safe period for operating has passed. A third class of surgeons say wait in all cases and operate in the interval of the attack. And yet another class is found who oppose operations in every case and continue signing death certificates, "peritonitis, inflammation of bowels, obstruction of intestines," etc., etc.

All kinds of medical management have been advised, from opium narcosis to total abstinence of all food and liquids by the stomach. With all this array of professional opinions can we wonder much at the articles appearing in the lay press? Why should this diversity of opinion exist in this day when opportunities are so frequently presented to all to gain a similar knowledge on this subject?

Basing the operative indications upon a purely conjectural (in many cases), pathological classification will often lead to error in staying the surgeon's efforts at relief. To say that this case is one of appendicitis gangrenosa, or that it is one of so-called catarrhal variety and deciding for or against the operation will lead to serious mistakes in many cases. I do not wish to create the impression in this paper that an operation is imperative in every case of acute appendicitis, far from it; I do believe that sixty per cent of all cases of acute appendicitis recover from the primary attack, thus leaving forty per cent in the uncured and doubtful class to run the gauntlet of recurrences and dangers incident thereto. My position with reference to when to operate would be, if every case of appendicitis was operated on as soon as the diagnosis was made that the mor-

tality would be reduced to practically nothing. Dr. Lloyd of New York kept track of twenty cases of this disease that have been observed for a number of years. Twenty-four per cent died, seventy per cent had recurrent attacks. Fitz's figures are about the same as Lloyd's. The medical man and the waiting surgeon should keep their case under observation a much longer time before reporting them cured without an operation. Many a case of appendicitis is reported by three or a dozen physicians as having been cured by medicines, the same case been operated on by some surgeon later, who reports the case as one case. Many cases of acute appendicitis never have an *interval* if a delay in operating is permitted. In many cases the pathology in a first attack of appendicitis is of such a character as to leave no doubt that the patient had been having unhealthy changes in the appendix for weeks or months. A faecal or other concretion may have remained in the appendix for months slowly but surely destroying the surface epithelium, thus breaking down nature's protective barrier to septic micro-organism invasion to the deeper structures.

In a primary attack of three hours' duration as far as clinical history is concerned, an ulcer through the mucous, muscular, or even a perforation may be met with, the patient giving no history of previous acute attack, or even many obscure or remote symptoms of these changes taking place in the appendix. I have operated on large healthy young men within six hours after the development of the first acute symptom and found a perforated appendix, or a complete stricture at the base of the appendix from old inflammatory changes at that point, the appendix being much dilated and filled with virulent pus.

The clinical history in this disease is often misleading. Take, for instance, the fever; in one case your patient may have a temperature of 104° F. on first or second day, and a pulse rate of 96 or even 84. An operation reveals a small ulcer in the appendix as the only pathological change present. A temperature of this height in another case with primary

history the same on the second or third day, may go down to normal, and many of the symptoms improve; at operation an appendix is found perforated, and a few ounces of pus found surrounding it, or the appendix may be completely gangrenous, with not an adheson surrounding it. We are told that a high temperature implies, as a rule, streptococcal infection, while a low temperature points to the colon bacillus or staphlococcus as the cause of the mischief. An operation reveals a general diffused septic peritonitis with fluid teeming with streptococcus, yet the patient never had a temperature above 101° F. So this symptom as an operative indicator loses much of its value in the face of demonstrated facts at the post-mortem or on the operating table. The operator who relies upon the height of the temperature as a guide to the kind of infection or to tell him when to operate will make many costly mistakes. Temperature increase is of value in making a diagnosis of appendicitis, but is unreliable when used beyond this in the question of prognosis and proper treatment of these cases.

The pulse rate is, as a rule, increase in frequency and more reliance can be placed on it in matters of prognosis than on the temperature. This is true especially in the later stages of a general peritonitis, but as long as the disease is confined to the appendix proper or to the immediate vicinity of the appendix its behavior is very erratic and misleading. An appendix filled with pus may raise the pulse only ten beats, while a well-walled-off appendicular abscess may be accompanied with a pulse of only 70. A rapidly spreading peritonitis is usually associated with a rapid increase of the pulse, while there may not be any peritonitis at all the patient may have a pulse rate of 140 from the rapid absorption of ptomaines and septic micro-organisms and their prolific increase in the blood. This is a clinical feature often lost sight of by the practitioner. The rapidly constitutional septic cases are the most fatal types of this disease. The removal of a diseased appendix and drainage of iliac fossa will not remove

streptococci in the blood circulating through the brain, liver and other structures of the body.

Pain, as a symptom of this disease, is always present at some stage, yet its character and intensity is as variable as any one symptom of the disease. In many cases, to rely upon the severity of the pain to predict the outcome of the case would be disastrous. In the beginning, the pain may be referred to a point above the umbilicus with waves of colic over the abdomen. These pains are often quite severe, and yet the appendix remain in a comparatively good condition; yet the most virulent pus may be escaping from a perforated appendix into the general peritoneal cavity and the patient may tell you he is much easier than on the first day of the attack.

The most unfortunate discovery ever made in appendiceal explorations was McBurney's point. I do not refer to this in a disrespectful manner, because I fully appreciate the great and good work of this illustrious and skilled surgeon. Dr. McBurney is not responsible for the want of a proper interpretation of the various locations of the appendix. Many fail to realize that the appendix "points" according to its location, to its length, and to the location of the pathology in the organ. This is another clinical feature to rely upon, in matters of treatment, may lead to error. Pain on pressure, or tenderness, is to be distinguished from syptomatic pain mentioned by the patient. A patient may complain of much pain at many points in the abdomen, yet pressure pain (tenderness), will be found in only one location, and that point will be nearest to the site of that portion of the appendix diseased. I consider this one of the most trustworthy indications of the true condition existing in and about the appendix. The palpating skilled fingers I believe can collect more reliable evidence for or against operation than all other methods or histories combined.

Intestinal gaseous distension as a symptom of danger is valuable when present, but its absence is often misleading as some of the most rapidly fatal cases I have ever seen have

not been distended at all. The quick formation of gas in these cases (where morphine has not been given), I consider one of the most dangerous symptoms, and especially is this true if the pulse rate is greatly accelerated and the pain diminished. All symptoms pointing to a rapid and general extension of the peritonitis. To delay here means, with rare exceptions, a rapidly fatal termination. Persistent vomiting is a bad indication and is usually accompanied by the symptoms just mentioned.

In a general summary of these cases the operative indications for immediate interference are often present and well marked, and need not mislead anyone of much practical experience, but of this class you are all familiar. The object of this paper is to lay stress upon the fact that to expect to find these typical symptoms and be governed by their presence or absence is a mistake and will cause delays and fatal errors in cases that should be operated on early and saved.

The presence or absence of a leucocytosis in cases of appendicitis to decide the question to operate or wait, is uncertain and misleading as to not be taken seriously in these cases.

In skilled and aseptic hands no uncomplicated case of appendicitis should die from the operation if too much delay is not permitted before operating. When a case proves fatal in such hands it is not the operation that kills; but the patient dies in spite of the operation. An incision through the abdominal walls with removal of the appendix is not going to head off the peritonitis under the liver and left kidney. No case of appendicitis should be permitted to go on until the pancreas and spleen are bathed in pus. All timely operations are easy, free from adhesions, with no open wound with tubercular or other drainage, and no subsequent hernia. A little incision, quick surgery and a closed wound is symbolic of a moist tongue, a slow soft pulse, a flat abdomen, a cheerful, quick and comfortable convalescence, with no post-operative complications. What more could the surgeon wish or the patient desire? Delayed operations mean a game of

chance in which a human life is the stake, if you lose it means a death, if you win it means a tardy recovery, a long incision, with painful dressings to the patient, and bad odor in that part of the hospital from faecal fistulae and offensive pus, and post-operative hernia occasionally.

With these truths before us our duty is plain, and we should meet these obligations intelligently.

DISCUSSION.

DR. PINCKNEY FRENCH, St. Louis: I regret very much that the time allotted for a discussion on a subject like this is so limited.

The first paper was intended to impress the Association with the idea that operative interference was rarely necessary in appendicitis and that medical treatment was more effective. I agree in a measure with the essayist that a large number of cases of appendicitis (in acute attacks) will recover without surgical interference, but I will add that they will also recover without medical interference. I wish to state without fear of contradiction that the pathology of appendicitis demonstrates that the essayist treated his cases in direct opposition to the pathology (as now understood) and that they recovered in spite of the treatment. Two years ago I read a paper before this Association that was intended to impress upon the members of this body the importance of the injurious effects of purgatives in appendicitis. I have insisted for years upon not using purgatives in this disease. I have witnessed some of the most disastrous results from this treatment. We are not able to distinguish accurately the condition of the appendix. It is not given to us to know whether there is a small opening in the appendix situated at or near the end, or whether there is a large opening situated near the junction of the appendix with the cecum. It stands to reason that if we have a large opening in the appendix near the junction of the cecum with the appendix and we give a purgative and liquefy the contents of the intestines we not only favor the breaking up of adhesions but we liquefy the contents of the intestinal tract and thus enhance the danger of the escape of the contents and spread the infection. If we could prevent the escape of the contents then we could use purgatives with less danger. I want to point out again that here is the danger and a purgative should never be used in appendicitis especially such purgatives as liquefy the contents of the intestinal tract. I have seen the most disastrous results follow the use of purgatives. We can prevent peritonitis but we cannot arrest its progress when it is once established. This is the reason why I so strenuously object to the use of purgatives in appendicitis.

I indorse the essayist's remarks in reference to the use of morphine. The

experienced surgeon can tell when or when not to operate in a case of appendicitis. Morphine, a liquid diet, rest in bed and 90 per cent of cases will recover from the attack. The other 10 per cent are those cases that are of the fulminating character or had repeated attacks and there is already some infectious material escaped from the appendix into general peritoneal cavity or it has accumulated about the appendix in the form of an abscess and is leaking.

We have various ideas about catarrhal appendicitis, about a gangrenous condition which is sometimes present and of the fulminating character of attacks. There is but one variety of appendicitis and that is the infectious variety. If that infection is confined to the appendix or its vicinity and is walled off, there is no necessity for an operation until we have an opportunity to operate between attacks. I undertake to say that no surgeon of experience and judgment would attack pelvic viscera when in a state of acute inflammation. If he did the result would be disastrous. In every case of appendicitis we have a subsidence, an amelioration of the symptoms not as detailed by Dr. Fulkerson within twenty-four to forty-eight hours but rather on the third or fourth day, and as a general rule if not by the beginning of the third or fourth day an operation is necessary before the termination of the case. Years ago I was in the habit of operating before the fourth day. Now I do not do so. I wait to see if there is a further indication, watch the pulse and temperature and operate when in my judgment I determine it is absolutely necessary. If you will let this be your procedure you will find it sufficient for every case. I don't undertake to say that in every case you ought to follow this line of work, because the surgeon might not have had sufficient experience to judge properly, but every surgeon ought to have sufficient experience to determine when to operate before assuming the resposibility of managing a case of appendicitis. In competent hands where the patient's surroundings are good — in a good hospital — there is no necessity to operate unless the indications point to the case progressing towards a fatal end. In the past twelve months I have watched several cases where the temperature ran up to 103°, the pulse to 120, and every one recovered and have had no attacks since. It takes the judgment of a good surgeon to tell whether there is an infectious collection and when to operate and when not to operate. I believe that in every case where there is a suppurative condition, or a fulminating infection, an immediate operation is demanded and only in such cases is it demanded.

Dr. John F. Binnie, Kansas City: There is such a thing as latent appendicitis and we do not know when this condition is present.

If we examine microscopically the appendix removed early in an attack, we will find a condition described as appendicitis granulosa — a formation of granulation tissue in the mucous membrane itself and the submucosa. This is the same condition as has been in some obliterated appendices — a most dangerous condition. This appendicitis granulosa occasionally exists for a long time without symptoms, but hemorrhage is likely to take place

into the diseased tissues. If it does take place, or the epithelium is broken, we may have entrance of micro-organisms and a resulting acute appendicitis. Foreign bodies also are a very common cause of acute attacks, and these attacks are commonly of the fulminating variety, because foreign bodies almost always have putrefactive bacteria in them. Gen. Sherman's characterization of war applies very thoroughly to the use of purgatives, although in a condition which is often mistaken for appendicitis every symptom is removed — it is often thought that the presence of exudate or tumor in the southwest part of the belly is an indication for operation. Personally, I believe if the general condition of the patient is good, such is a sign of safety and means that if suppuration has taken place it is walled off. Without the presence of an exudate, if the symptoms are bad, it is extremely dangerous to delay. If there is no improvement at the end of twenty-four hours I usually operate. In deciding as to whether an immediate operation is necessary or not it is of much importance to consider the patient's home. If he cannot be removed to hospital and if his residence is so located that he cannot have prompt surgical care, should serious symptoms arise, then it is prudent to assume that complications will arise, and avoid them by operating at once.

Dr. Geo. A. Nash, of Maryville, Mo.: There is no subject in either medicine or surgery that is more written upon or discussed than this one, and I think it is time we should have some crystalization of opinion in regard to this dreaded disease. I think we have something better than the application of hot poultices to the abdomen, or the internal administration of the sulphate of magnesium, in appendicitis. I wish to go on record accepting the views in toto of Drs. Joseph Price and John B. Deaver of Philadelphia in the radical operation of all cases which present themselves. We expect criticism, and willingly accept the same, but by operating early we cure our patients. I defy any man to tell me what case may not result in a fulminating one. The able essayist has just stated that sometimes it will end in six hours with no premonitory symptoms. I claim that procrastination and so-called conservatism results very disastrously to victims thus affected. If an electric light were placed over the graves of victims who have gone down under the treatment of conservatism, the cemeteries would look like an illuminated city. I wish to enter a protest against practitioners who persistently rely upon medication in these cases, they do a great injustice to the surgeon when they do not call him until 11:55, when really they should then have called the undertaker. It has been my sad experience to have been called thus late, and like an operation on advanced carcinoma, which brings the operation and the surgeon into disrepute, when delayed too long. I believe that no surgeon should attempt an operation when his reputation and the life of the patient is placed in extreme jeopardy by the so-called conservationists, who are always ready at the last moment to shift the responsibility upon the surgeon who operates as a dernier resort and under the most unfavorable circumstances is therefore

an object of criticism, when in reality the blame should rest upon the negligent practitioner.

Dr. WILLARD BARTLETT, St. Louis: I rise in the interests of a laboratory method which seems to have no defenders here, a method that is no doubt of value as a diagnostic measure at the same time of value in prognosis. Dr. Cordier referred to it casually in his paper.

The visible signs and symptoms are, at least in some cases, indefinite and of little value. We have, on the other hand, a certain and definite indication for operation, a prognostic point, in the leucocytosis, in the blood count. Dr. French referred to cases in which there was a suppurative condition existing in cases in which an operation should be done but didn't tell us the indications. A leucocyte count made every two or three hours, if it shows the leucocytosis increasing above 18,000 or 20,000 means a condition which requires, absolutely demands, surgical interference. I can tell you of cases in which the leucocytosis was found to be 35,000 and where there was not another symptom and no physicial sign which indicated a surgical operation, but when the abdomen was opened a condition was found which would have resulted in the death of the patient if left alone. Leucocytosis that has been high and is decreasing rapidly means that an operation should not be performed because that patient will die whether an operation is performed or not — it will be found that general peritonitis has already developed.

Dr. H. E. PEARSE, Kansas City: I want to say a word in defense of Dr. Cordier's paper, although I recognize the fact that it doos not need this from me.

If I should find a can of oil blazing in the cellar on my property I am not going to sit back in the house and think it will not take fire from the oil can and I will not wait and watch it until it has blazed to the second floor before I will say there is any trouble in the house. I am going to gather up that oil can and throw it out in the yard. And I will not take it up the stairway through the kitchin and parlor and out the front door and contaminate the whole dwelling, but I will take it out the most direct way. It would be no use to tell me to wait, that the house won't catch fire, simply because somebody else had seen an oil can blaze out. Because my neighbor got off safe is not reason enough for me to think that I would escape. An old negro came to me the other day and said he would live another year. When asked how he knew, he said he had noticed that when he lived past the first of March he always lived through the year, and "Bless God I passed de first o' March."

I believe the best thing I could do for my patient in an attack of appendicitis is to remove the trouble as quickly as possible. If the flame has passed beyond the cellar and the floor is blazing and the roof smoking it is time wasted to go to the cellar and get the oil can to throw out, and so I say to operate is safe and proper, yet there is no use going after the appendix in the fulminating character to kill the patient. The time to operate is early in every case. We don't know that it will pursue a safe course to resolution.

Dr. FULKERSON, Lexington: I was not disappointed at the surgeons ripping me up the back. I expected nothing else. Knew that every surgeon present would advocate operating at once for appendicitis, in fact that they were never better satisfied than when knifing some unfortunate fellow.

Had Dr. French have listened attentively to my paper he would have heard me repeat what I had already said in my paper and that was that there were cases where it was indispensably necessary to operate and operate at once, in fact the only hope for the patient, but that these were exceptional cases and that when performed it was rarely under from twenty-four to forty-eight hours, and as a rule medical treatment in that length of time would have so far relieved the patient that an operation would be unnecessary. As to the purgative in the commencement of the treatment I must differ from the two distinguished gentlemen, Drs. Cordier and French, who have just disputed the paper. They are terribly opposed to the administration of purgatives, theoretically, I presume, and not that they have ever used purgatives in appendicitis judging from the manner in which they condemned them. In the great majority of cases the bowels are constipated, ladened with hardened faeces which of itself adds to the irritation by pressure upon the inflamed tissue. By unloading the bowels you not only get rid of this source of irritation, but in addition expel poisonous material which, if permitted to remain, might of itself add greatly to the mischief. Not only this, the sulphate of magnesia, my favorite purge in such cases, produces copious watery discharges and in this way relieves the enlarged and inflamed tissues. As soon as the bowels are well opened I control peristaltic action by morphine hypodermically used.

Dr. CORDIER, in closing: I want to thank the gentlemen for the generous discussion.

In regard to the use of cathartics, if there is one thing in the medical treatment in appendicitis, it is this saline treatment. There is nothing equal to this method in the treatment of these cases, and if I had an attack of appendicitis and did not have the nerve to be operated upon and the attending physician said I had to be operated upon I would say, don't give me morphine, but give me a saline cathartic. It is not giving the cathartic that forces the contents of the canal into the abdomen. Sixty per cent of cases will get well if we do nothing, but what will we do for the other forty per cent? If the surgeon cannot be certain in the care of these cases he had better quit. I protest against what was said about the surgeon learning something from the physician. For three thousand years the physicians didn't know what this disease was. For three thousand years they have been signing death certificates as inflammation of the bowels, etc.

In regard to leucocytosis it is nice to have these fine drawn out theories in the laboratory and we should take anything that will help us, but if called out into a small town and see a patient with a swollen abdomen you are not going to wait for a laboratory diagnosis. My convictions are so firm that sometimes I feel, when called to see a case seemingly too late to operate on it, that I feel like I am not doing justice to the community in which

that patient lives to try to save him when he has allowed the case to go on until it is too late to operate. No case should die from the simple opening of the abdomen and taking out the appendix. I think our duty is plain in these cases. If we operate early they will get well, but if we wait and allow the condition to grow and have a metastatic process in other organs with general sepsis you know we cannot save them.

LIPOMA.

By John D. Seba, M. D., of Bland, Mo.

A meeting of the State Medical Association without the presentation of a tumor would be incomplete, and as I had no assurance that anyone else would present one, I beg leave to present one myself.

Lipomata are described, in medical literature, as fatty tumors consisting of adipose tissue identical with normal fat. They are innocent — grow slowly — may reach a large size, are usually single, but occasionally multiple, are almost painless, occur chiefly during adult life, and do not reoccur after removal. The composition is fatty substances or vesicles, caught together by delicate connective tissue in which the blood vessels ramify. They are usually attached by fibrous septa to the skin.

Fatty tumors may undergo certain changes, as calcification, mucoid softening, inflammation from the pressure, ulceration and suppuration. They have predilection for the back, shoulders and nates. The one I present to you to-day occupied the back and left shoulder. It was removed March 26, 1902, from Mrs. L. H. German, aged 53 years. The growth of this tumor extended over a period of 16 years, and had been variously diagnosed as cystic tumor, cancerous infiltration, bone abscess, bone tuberculosis, tuberculous abscess, and spinal hernia. It had been rubbed by osteopaths and stroked by magnetic healers, and even received the absent attention of a famous Nevada professor. The electric belt and electric appliance of others was of little use. Nothing but the knife promised any relief, which should not be delayed too long.

The weight, 10½ pounds, of this tumor, caused the greatest inconvenience, also the chafing which was produced in the folds of the skin under the tumor, where it hung over the back down to the hips, was nearly unbearable during the summer season. This tumor measures 23 inches in circumference, but, counting flaps, 30 inches of the skin were cut.

Chloroform was used as an anaesthetic, 30 minutes was required for the removal of the tumor, and 30 minutes more to put in the sutures; continued sutures of cromatized catgut were used. As considerable hemorrhage was encountered, blood vessels were ligated with silk ligiture, flaps covered spaces perfectly. Gauze was used as a drainage in the most dependent part of the wound, about one-half of the wound healed by the first intention, recovery from the operation was uninterrupted, and was complete within one month from date of operation.

ANGIOMA OF THE LIVER—REMOVAL—WOUND TREATED BY THE INTRA-PERITONEAL METHOD.

By C. M. Nicholson, M. D., St. Louis.

Angioma may be defined as a tumor composed of blood vessels produced from a matrix of cells of the vascular layer of the embryo, taking part in the development of the blood vessels. This definition excludes from this class of tumors all swellings caused by dilatation of pre-existing blood vessels.

Under the head Angioma, Virchow included all vascular tumors. Ziegler sanctions the opinion that cavernous spaces are formed by dilatation of pre-existing capillary vessels, accompanied by pressure atrophy. Senn considers this view untenable, as the structure of the tumor does not represent the conditions produced by vascular obstruction.

Weil, from his observation, concludes that the origin of new blood vessels is as variable as the formation of new embryonal vessels. He found projecting from the wall of the old and new capillary blood vessels, streak of protoplasm which showed nucleated projections, which, in the course of time, became laminated and were traversed by blood from the pre-existing vessels. In other places he found proliferation of the endothelial cells which formed buds and projected into surrounding tissues. These masses of endothelial cells formed new vessels by the formation of hollow spaces which communicate with the vessels from which they originated.

Rokitansky has seen and described the formation in the connective tissue of blood spaces discontinuous with pre-existing blood vessels and which only later entered into communication with them.

The angioma is composed of three parts. First, new blood vessels which are in communication with the adjacent vessels. Second, interstitial tissue composed of pre-existing tissues in which the tumor develops, and third, the blood contained in the vascular spaces. In the growth of the normal blood vessels the angioblasts furnish the essential tissue elements of the blood vessels. The blood vessels reach their requisite normal size when the process becomes stationary. The angioblasts from which an angioma develops observe no such limitation of function. Their function is a progressive one and their product of tissue proliferation results in the formation of atypical blood vessels which are not required by the part in which they are produced and which constitute the essential tumor tissue.

The vascular spaces are lined with endothelial cells, the product of the angioblast. In growing angioma new blood spaces continue to form, and again enter into communication with older vascular spaces. As the blood spaces are formed by the production of an intima from the angioblast, active proliferation takes place in the remaining tissue of the vessel wall. Connective tissue and muscle fibers derived from pre-existing blood vessels, are produced, forming the outer and middle coats of the new vessels. The limits of the tumor as in all benign growths, are well defined; the communication with blood vessels is very free. Virchow and Maier have shown that angioma of the liver can be injected from the hepatic artery and vein and from the portal vein. According to the number and activity of the angioblasts the tumor may grow, remain stationary, or disappear spontaneously.

The cavernous angioma may be either congenital or acquired, is found in the liver, spleen, kidney and bone, and composed of irregular blood spaces, which communicate freely with one another, and are separated by fibrous septa of variable thickness, the walls of the blood space are lined by endothelium. The formation of the new blood spaces takes place in the fibrous septa and in the periphery of the tumor.

Great progress has been made in surgery of the liver, during the past fifteen years, due largely to the results of experiments on animals of Gluck, Ponfick and Meister, and the mortality has been reduced from 62 to less than 10 per cent. The patient whom I present, Mr. P. H. P., is a Dane, age 39, single, plasterer. He entered Rebekah Hospital, July 22, 1901. His past history and that of his parents, who are living, reveal no antecedents which bear on the present trouble. As a boy he was delicate, but for twenty years prior to 1896 he enjoyed good health. During the spring of that year he experienced a feeling of fullness at the pit of the stomach. Some months later pain in the epigastric region became a prominent symptom. The pain recurred at intervals of two or three weeks, and was accompanied by nausea, and occasionally by vomiting. He had refrained from eating for twenty-four hours or more at a time to obtain relief. Had been unable to attend to his work for five months past, during which time he had lost twenty pounds in weight. His bowels were regular, urine straw-colored, specific gravity 1020, no albumen, no sugar, slight sediment.

On examination a tumor was felt in the median line, a little nearer the ensiform cartilage than the umbilicus. The growth pushed the abdominal wall forward. It could be moved in all directions, was tender on pressure, dull on percussion, tympanitic zone between it and liver and would move slightly with respiration. Inflation of the stomach did not alter the position of the tumor. The lower border of the left lobe could be felt below the growth, so that the probability of attachment to the stomach, colon, pancreas, or omentum was excluded.

July 25th an incision was made over the most prominent part of the growth, a little to the right of the median line, extending from just below the ensiform cartilage to a point an inch above the umbilicus. A rounded tumor measuring $3\frac{1}{2}$ inches transversely presented. Examination with the index finger showed it was pedunculated, elevated above the

liver more than two inches; that it occupied the anterior surface and did not extend to the lower border of the left lobe. By pressure, its size could be slightly reduced. Believing it to be an angioma, I cut down through the liver tissue into its substance, intending to put an elastic ligature around its base. The hemorrhage was alarming. To control the bleeding I surrounded the left lobe an inch to the right of the incision into its substance with a small rubber tube, and with scissors curved on the flat, I divided where I had intended applying the ligature. Five cavernous spaces were to be seen. These were closed by chromasized gut ligatures, passed through the liver substance some distance from the sinuses. The surface was then packed with sterilized gauze and the rubber tube loosened. The cautery was not used, as the gauze packing effectually controlled the bleeding.

The method of dealing with the wound next presented itself. Knowing that Langenbach, Wagner, Lius and Keene had closed the abdomen after controlling the bleeding and Lius's and Wagner's cases died of hemorrhage and that Langenbach's case was only saved by re-opening the abdomen and tying the vessels, I decided to fix the stump into the abdominal wound. This was tried but the tension was so great, the stitches were removed. The upper and lower angles of the abdominal incision were then closed. The surface of the liver wound was packed with gauze, which extended through the parietal incision. The abdominal cavity remaining open forty-eight hours later I removed the gauze (which was stained by bile) intending to close the parietic opening, but some oozing appeared. The following day a second effort was made with similar result. On the fourth day the packing was removed. The edges of the abdominal opening freshened and the wound closed. The patient made an uneventful recovery. At no time was the temperature above 101½. He left the hospital August the 11th, sixteen days after the operation, apparently well.

Being anxious to know the exact nature of the growth, the

specimen was sent to Doctor Henry Rohlfing, well-known pathologist of this city. The following is his report: —

"The microscopical finding is a specimen labeled 'Patterson,' submitted July, 1901, for examination. I have to report as follows: The general appearance of the specimen contained quite a fibrous stroma in which was suspended fusiform blood vessels, tubular and sacculated variously throughout, also cavernous variety with hyaline generations of underlying tissue, considerable parenchymatose hemorrhage; normal liver structure entirely absent."

Reviewing the literature of the subject I find the total number of operations for hepatic tumor thus far reported 76, though but four of that number were for angioma.

At this time, almost ten months after operation, the patient has had no recurrence of the attacks of pain, nausea or vomiting, has gained fifteen pounds in weight and is in the daily pursuit of his calling.

CONCERNING THE ETIOLOGY OF CANCER.

By F. J. Lutz, M. D., St. Louis.

For a proper understanding of the etiology of cancer it will be necessary to recall some of the fundamental facts of histology.

The organism is composed of morphological elements called "cells." It grows by the differentiation and multiplication of cells. All deviations from the normal consist in cell alteration. All pathological processes are recognized and classified according to the changes observed in the cells. According to the function which a cell is to perform in the developing organism will be its peculiar characteristics and properties. In the course of their multiplication and growth some cells remain in contact with each other — the *epithelial* and the *endothelial* cells; others are separated by an intercellular substance — *connective* tissue, muscles and nerves. From the former spring epithelial tumors — carcinomata; from the latter, sarcomata.

Cancers are malignant tumors. Malignant tumors are recognized clinically by certain well-defined manifestations; they grow rapidly, they infiltrate the surrounding and adhere to the overlaying tissue, they involve the adjacent lympathic glands, they become disseminated in distant organs, leucocytosis is well marked, they tend to recur after removal and they destroy life by toxaemia.

Histologically cancers are composed of cells resembling their embryonic prototype; the formation of the new cells is without definite order or direction and goes on unchecked. The newly-formed cells fail to develop.

What causes this cell conglomeration! What influences are at work to produce it? What is the starting-point of

malignant tumors? I will not do more than merely mention the general influence which sex, age, bodily habit, heredity, environment, occupation and food exert in the production of malignant growths. To each of these experience seems to assign at least a predisposing influence. My remarks will be limited to a presentation of the local disturbances and their alleged causes.

Cohnheim assumes that: "In an early stage of embryonic development more cells are produced than are required for the building up of the part concerned, so that there remains unappropriated a quantity of cells. These may be very few in number, but owing to their embryonic character they are endowed with a marked capacity for proliferation."

Do we not however find malignant tumors in scars and ulcers? And is it not a fact that the cells of tumors, as Waring has pointed out, often retain the physiological characters of the cells of the part in which the tumor originates? In carcinoma of the stomach, the primary growth contains pepsin and rennin and he extracted all the ferments peculiar to the pancreas in primary and secondary growths of this organ.

Of course if such a rudiment exists, a tumor might arise from it. But what starts it into activity? It is well established clinically that trauma—mechanical and chemical irritants are factors not to be overlooked in connection with cancers. The chimney-sweep, the paraffin cancer and the lip cancer of the smoker all have an element of trauma and mechanical irritation in their histories, and yet bruising the mammae of animals which are peculiarly susceptible to cancer, painting the scrotum of rats or the mammae of bitches with soot or paraffin were not successful in producing cancer. In fact cancer has not been produced experimentally by trauma.

In seeking for an explanation of the perverted cell growth of cancer attention was directed early in the history of parasitic investigation to the similarity of cancer and infectious diseases, more particularly as regards metastatic formations.

I consider it beyond the scope of the task assigned to me to enter into a discussion whether the parasites which are claimed to be constantly present in cancer cells are of vegetable or animal nature or whether the objects seen are mere degeneration changes of the epithelial cells and not parasites at all. This part of the discussion will, no doubt, be very ably presented to you by the distinguished visitor from Buffalo, to whom we look for much information upon this subject.

We must confine ourselves to an examination of the ground upon which the parasitic explanation of cancer is based.

As early as 1887 Ballance and Shattock attempted to cultivate micro-organisms from carcinomata. Russel in 1890 discovered his "fuchsin bodies" which he considered blastomycetes. Plimmer distinguishes the parasites which he found included in the cells of cancer by the fact that the nuclei do not stain with nuclear dyes but take the acid stains. Plimmer claims to have obtained pure cultures of these bodies and similar claims of having been successful in cultivation experiments are made by Sanfelice and Poncali. Neither of these investigators, however, has made successful inoculation experiments.

The organisms — not bacteria — which have been discovreed by Gaylord in the Buffalo Laboratory, were successfully inoculated into animals and adeno sarcomata were produced. They appear to belong to the protozoa and have amoeboid movements. They are cultivated by depositing them in collodion sacks in the living animal.

As yet many of the postulates absolutely essential to prove cancer an infectious disease have not been indisputably complied with. Nor has the question been satisfactorily answered: How does the parasite produce the epithelial proliferation? On the one hand it is held, and this a most improbable explanation, that the parasites unite with the epithelial cell somewhat like the conjugation of the sperm cell and the germ cell, thereby inducing a fresh capacity for proliferation. On the other hand, Plimmer explains the proliferation as a

defensive reaction of the organism against the parasite. But in infection, the results of parasites whose behavior is well understood, there occurs inflammatory reaction and the inflammatory reaction in cancer is against the proliferating cells and not against the parasites.

In infection of epithelial surfaces the infected epithelial cells are cast off and the remaining cells undergo proliferation; they take the place of the destroyed cell. This is called defensive reaction. In cancer, the cells are not cast off but they keep on proliferating and penetrate the surrounding tissues, and the penetration of epithelial cells into surrounding tissues constitutes the essential lesion in carcinoma.

Again, how does a parasite cause a metastatic tumor? Metastasis is one of the principal clinical characteristics of carcinoma. Metastasis could not occur in tissues devoid of epithelium except upon the assumption that epithelial cells had been transferred from the primary growth. The cell into which the parasite has entered is said not to proliferate but to undergo degeneration.

All these difficulties suggest themselves from a scientific and practical standpoint, and yet we hail with delight the prospect of understanding better these most dreaded diseases, which are so malignant and so universally distributed, and which we have reason to believe are constantly on the increase. Neither the administration of drugs, nor the knife, nor the cautery, nor the intentional infection of the growth, is followed by cure. The connection of the ovary with the mamma, and the subtle influence of the thyroid have all been pressed into service with indifferent success. Not even the all-penetrating ray of Roentgen, with its inconceivable possibilities, illuminates the therapeutic highway for more than a short distance.

Would that the pathologists and bacteriologists established the parasitic nature of cancer — for then it would be but a short step to discover its antidote.

If cancer is proven to be due to infection, then its primary

local nature, now practically the basis of surgical action, will have a scientific foundation, and the public so generally influenced by the theory that it is a blood disease, manifested locally, will hesitate less to permit the early and radical removal of these new growths.

The most pronounced advocates of the infectious nature of cancer do not claim that a single parasite is the cause of all forms of carcinoma. The hoped-for antidote — the cancer antitoxin — awaits its discoverer.

THE PRESENT ASPECT OF THE CANCER PROBLEM.

By Roswell Park, A. M., M. D., Buffalo, N. Y.

The most important problem in pathology of to-day is still the cancer problem. It is likewise the most inscrutable. It continues to engage, as it must, the attention of all students of pathology and research workers, and never was it attacked from so many different directions as at present. Although, so far as final solution is concerned, it still remains the riddle of the ages, nevertheless, a great deal of light has been thrown upon its perplexities by research of the past few years. In this systematic investigation, New York State has been the pioneer, and the Cancer Laboratory, now working as a department of the New York State Board of Health, is, as it has been since its organization five years ago, an exceedingly active center for such investigation. The studies which have proceeded from this Laboratory have engaged the attention of the most earnest thinkers the world over, and have given prominence to the effort there making to solve at least some of the mooted questions concerning this dread disease.

Five years ago, when endeavoring to secure State aid for this purpose, I called attention in a variety of ways and in different publications, to the steady increase in the disease, taking for the purpose at that time the population of New York State, and showing what a rapid increase in mortality could be noted, decade by decade, in its State Board of Health returns. Incidentally the position was taken that this increase concerned not New York State alone, but a large part at least of the civilized world. These statements had a force which was almost dramatic and were challenged in

various places and by various writers. They stand to-day practically unchanged after all the assaults made upon them, and more than this, confirmed by statisticians at home and abroad, who have not been able to explain away the figures presented by any theory save that including the actual fact. Maps and figures have been published in Great Britain, in Germany, and in many States of this country, which fully corroborate the general statements that I made some years ago. The force of the argument is not lost even supposing that the critics are in some measure correct in the statement that the increase is to be explained largely on the ground of improved diagnosis. For, if this be so, while the rate may not be increasing quite so rapidly, nevertheless it shows what a number of deaths are actually occurring from the disease, and stamps it as equally important and equally deserving the attention of the highest sanitary and public authorities. In this connection, and without wearying you with figures, I would simply like to call your attention to some figures gathered by a perfectly unprejudiced student of the subject, Dr. F. F. Simpson, of Pittsburgh, Pa. Early in 1901 he addressed notes to the Boards of Health of many of the larger States of this country, requesting facts regarding population, the total number of deaths and the number attributed to cancer, for each year from 1890 to 1899. From this official report it would appear that for 1899, 22 States with an aggregate population of 9,359,600 reported their total deaths to be 169,608, while their deaths ascribed to cancer aggregated 5,486. It therefore would appear that of all deaths in those States for that year one in every 31 was due to cancer. If we accept the view that almost all deaths from cancer occur in those over 30, and accept at the same time, the data upon which life insurance companies base their risks, viz.: that 56 per cent of deaths occur under the age of 30, we are safe in a conclusion that of all who die over the age of 30, one in 14 dies of cancer.

Out of a number of tables which he prepared, there is one

showing the relative number of deaths from cancer and from all causes in the years given, most of this information coming from the United States Census reports.

In 1850, 1 death from cancer to 156 deaths from all causes; 1860, 1 death from cancer to 109 deaths from all causes; 1870, 1 death from cancer to 79 deaths from all causes; 1890, 1 death from cancer to 47 deaths from all causes; 1900, 1 death from cancer to 35 deaths from all causes.

From this it will appear that within the past fifty years the proportion of deaths from cancer has risen from 1 in 156 to 1 in 35, or in round numbers is five times greater than in 1850. These figures are startling and moreover have the corroboration of independent observers in several different parts of the world.

But statistics make poor reading in public and I am quite willing to let the current literature of the day substantiate all that I have claimed in this direction.

With regard now to the nature of the disease, the problem may be summed up, I think, in these words: Cancer is cell anarchy or cell revolution, if you will, provoked by some agency. When we know the exact nature of this excitant, we shall have the basis for our work. It must come, however, either from within the cell or from without. What it is that makes cells act in the way they do in this disease, is the great question. The evolutionists and the histologists have been trying to solve this problem either on broad general considerations, or by examining it through the microscope, and both have missed the very important clinical side which we cannot afford to miss if we are to square ourselves with it. Absolutely no explanation is afforded for this peculiar cell activity which can come from within the cell alone. Neither atavistic tendencies, hereditary influences nor any other explanation which can be framed in words suffices for this purpose. There is and can be but one explanation; some extrinsic influence brought to bear upon the cells alone suffices to explain their morbid activity. Summed up in its

comprehensive significance, this means the parasitic theory of cancer, which has not yet been reduced to a question of what parasite, but rests at present upon the broad and indefinite plane of mere parasitism. Histologists and the old line pathologists who adhere to conventional views will never decide this matter. It must be viewed from a wider standpoint than that afforded by the brass tube and the lens at either end of it. I cannot help repeating here the fact to which I have more than once publicly alluded, that there is no other disease characterized by metastasis in which the pathologist declines to see a parasitic, i. e., an infecting and infectious agent. Why is it then, that he refuses so blindly to see it in this particular instance? There is no other disease even characterized by progressive infiltration which has not a parasitic cause or parasite as a cause. I should keep repeating my own arguments were I to rehearse here all that might be said in favor of the parasitic hypothesis, of which I have been for years a most ardent advocate. To very positive arguments which might be adduced in its favor, are opposed mere negations by those who cannot accept it.

But the strongest arguments which can be adduced in favor of it must be those which experimentation or accurate clinical observation may afford. In this direction I would call your attention to the experimental results already reported from the Buffalo Laboratory by Dr. Gaylord, and especially to the photographs which I pass around showing the experimental results of Dr. Leo Loeb, who has worked especially with small animals and particularly rats. It has appeared more and more to the experimenters in this direction that cancer can hardly be transmitted from animals of one species to those of another, but that it can be experimentally transmitted from one animal of the same species. Dr. Loeb has brilliantly demonstrated this in the rat. The photograph exhibited herewith is of one of his experimental animals, one of a large series in which he transmitted the disease by intraperitoneal inoculation. The original tumor appeared as a

sarcoma in an animal secured by him, and he has already succeeded in reproducing the disease in from two to three hundred animals of the same species. This particular specimen shows an intra-abdominal growth thus produced within a few weeks, the photographs being made by Dr. Gaylord. (See Dr. Loeb's paper, *Journal of Experimental Medicine.*) Such an unbroken series as this would seem to quite do away with all the objections of the old line pathologists as to failure in transmission of the disease from animal to animal.

Contrast with this again, other photographs which I show you of a heart and liver from a patient whose history briefly was as follows: This patient was 24 years of age and for a long time and up to his death under the observation of Dr. G. W. Wende, of Buffalo, with whom I repeatedly saw him. There is no family history of any cancerous lesion. He had a congenital pigmented mole on the shoulder and in his occupation was compelled to carry heavy firkins of lard, which he usually bore upon this shoulder and by which he constantly irritated this little congenital growth. He was noted for his strength and it was said of him that he could lift a horse. By this fretting, he produced at this point an open sore which would not heal. At a homeopathic hospital a ligature was tied around this growth so that it fell off, but it soon returned with a cluster of growth around it some of which were pigmented and some not. One of the photographs shows the appearance of the back shortly after this condition was noted. When first seen by Dr. Wende he had between 200 and 400 pigmented and non-pigmented small tumors of the skin scattered all over the body. When seen by me he was suffering from dyspnea and all the clinical evidences of mediastinal growth, and died with every clinical evidence of extensive metastatic involvement of viscera. The post-mortem made by Drs. Wende and Gaylord showed this to be the case and the heart and liver were in a condition indicated by the illustration. Under the microscope the picture was of rapidly growing carcinoma.

Who now can view such a case as that and fail to compare it with the most extensive and rapid spread of, for instance, tubercular disease? And who can say, viewing either the slides or the gross specimens that this sort of condition can be brought about by anything but an infectious agent?

Evidence of an entirely different character is afforded by the study of so-called "cancer houses," and of cases occurring endemically or in family groups. One of the best of recent studies of "cancer a deux," as the French call it, is that by Behla, who has already done so much in this line of investigation. (*Deutsch Med. Woch.* 1901, No. 26.) He has here brought together a surprising number of cases of this kind and of instances which stamp the disease as almost more than infectious, it appearing to be even in some instances actually contagious. From such sources and many others, we can get ample justification for the statement made by Czerny that there is more reason for believing in the infectiousness of cancer than of leprosy. Additional argument against heredity of the disease can also be furnished by this statement; that there is so far as known not a single case on record of cancer in the new-born, and that it develops in human beings at a time when they are farthest removed from any hereditary influences.

Passing now from these aspects of the problem, let us consider some of its bio-chemical phases. Cellular morphology is far from being an exact science. There are minute differences between tumors which appear almost identical and there are marked resemblances in tumors which appear very different from one another. No matter what the microscope may reveal, the clinician is quite able to affirm that most varying and variable conditions obtain in different tumors. There is as much difference between cells of the same type, and between their appearances, as there is in shape between human noses. For instance, one case of epithelioma will proceed so exceedingly slowly as to become an affair of years' duration, while, at other times, its course may be so rapid as

to stamp it as possessing the highest degree of malignancy. These changes are not to be explained by the shape of cells nor character of surrounding tissue; they still constitute a part of the mystery of cancer.

Nevertheless, something of light has been shed upon these differences in cell growth by bio-chemical investigations, such as those made, for instance, by Brault (Le Prognostic des Tumeurs base sur Glycogene, Paris, 1899), which pertain to the amount of glycogen present in the tissues of certain tumors. In various papers, he has shown the prognostic value attaching to such researches. All tumors, without exception, contain a certain proportion of glycogen, especially those of epithelial origin. This glycogen seems to be stored up as a sort of reservoir of potential energy, whose quantity is a measure of the possibility of rapid cell action.

It is a rather curious fact that while histology demonstrates certain fundamental differences between sarcoma and carcinoma, for instance, these differences are not maintained or cleared up by chemical activity of the cells which constitute the tumors. For instance, in sarcoma of a limb there may be present an enormous accumulation of glycogen, and this whether the cells assume the small round or the large spindle shape. Even in benign tumors, glycogen is not lacking, for it has been observed in almost every one of them. This is important, for it would seem to show that glycogen is an index — not of malignancy, but of rapidity of growth, i.e., as said above, of potential energy. The glycogenesis noted in tumor formation is not distinguished by any important peculiarity, for it proceeds normally in various parts of the body, as, for instance, the liver and muscles. Tumors, like other parts of the body, are simply collections of cells, whose growth does not seem to follow such fixed laws, however, and which seem to have escaped from certain impulses. In sarcoma, for instance, the cells, though pushed to a certain distance from centers and deprived more or less of normal secretions, present, nevertheless, the faculty of storing up glycogen, no

matter what their shape or size. Whether these tumors develop in the liver, or at a distance, there seems no difference in their glycogenic contents, nor does it matter whether, when in the liver, the biliary passages are closed or not. In fact, glycogenesis is simply a cell function, and is not the exclusive property of any particular organ, but is necessarily inseparable from the activity of tumor growths and cannot be localized. It is also worthy of note that the glycogen thus formed does not act as though it were a secretion to be formed and used for a purpose, but is simply stored up, as it were, in a reservoir for use when needed. A careful bio-chemical study, therefore, of tumors will show that the glycogenic coefficients of their tissues are indices as to the degree of their malignancy, i. e., to the possibility of their rapid cell formation.

The relations between inflammation and cancer formation seriously concerned the minds of the pathologists of the earlier part of this century and that preceding. For instance, Broussias, who described an inflammation of the rectum, which must have been malignant, died himself of the same trouble; and writers like James in 1746, Nisbet in 1795, Burns in 1800, and Wenzel in 1815, ascribed all tumor growths to an inflammatory origin; which was not strange under the conditions of knowledge obtaining at that time. Even comparatively recent writers have not been lacking who ascribe the lowering of tissue resistance to an increasing blood pressure, for instance, such as is seen in the ordinary chronic inflammatory disturbances.

The subtle influence which guides epithelial formation in a pretty uniform direction has been likened to that which makes crystals of the same substance assume invariable peculiarities. They form in obedience to some unknown influence, while epithelial cells form a cancer in obedience to some mysterious law with which we are not acquainted. Nevertheless, it is undeniable that the more cells a tumor contains within a given space, the more malignant are its clinical

characteristics. Ackermann (Hellin, Struma sarcomatosa, Munchen, 1893), for instance, has stated that sarcoma differs from fibroma merely in this respect — that the cells have not had time to complete their progressive metamorphosis into ordinary connective tissue. Certain it is that many normal tissues are built up from small beginnings, just as are the tumors; the thyroid, for instance, as Gegenbaur has reminded us, which grows like a neoplasm. It is a growth which differentiates itself from embryonal tissue in the most significant way, and I have seen at least one case myself, in which it seems to have continued to develop into a mass which became a tumor, and determined the death of the child. In fact, the various metamorphoses of embryonal tissue almost defy scrutiny and classification. The cells of a lipoma, for instance, undergo a certain change which reminds one of embryonal tissue before they enter into the composition of a distinct tumor. Myxoma is almost an intermediate stage between lipoma and sarcoma, and one can often follow the changes as he follows the tissues from benign into malignant alterations. In fact, according to Virchow, it is, in one sense, the incompleteness of a given tissue which furnishes excuse for development of a tumor in the same. This is, perhaps, especially true of naevi. The more complicated the structure of the original tissue, the greater the danger of tumor formation. The simplicity of muscle cells and of true nerve cells constitutes their exemption from true tumor formation, since we have no true tumor forms of striped muscle, nor of nerve cells. Not very different is carcinoma of organs or parts undergoing retrogressive metamorphosis.

Many of these changes remind us also of changes that go on normally in the young tissues; carcinoma formation of the skin glands, for instance, is almost the same process as that by which the epithelium grows downward and first forms them. Epithelial cells penetrate as a solid column, which undergoes a certain liquefaction that corresponds to the softening going on in many cancers.

Cancer cells seem, in some cases, "born" too early and in some cases too late. The occurrence of truly embryonal cells in adult tissue is physiologically an anachronism which some medical philosophers have been pleased to record as a sort of atavism. That which in normal tissues is transitory, in cancer remains stationary. Carcinomatous tissue is heterologous only in the developmental sense, not when the embryo is considered. Cancer cells resemble the ephemeral insects which appear, pair themselves, reproduce their kind and die all in the same day. There is much in the nature of cancer cells to put us seriously in mind of some atavistic process. The cells lose their function and develop wildly. Nor should we forget those peculiarities which evince themselves when cells intended for one purpose assume another function. Thus, for instance, in complete prolapse of the uterus, where the mucosa so closely resembles the skin, we may see that a naturally concealed and deep lying tissue has appropriated the peculiarities of the superficial. It is the most indifferent tissues which prove the most common points from which a new growth takes its origin; as in cancer of the eye, for instance, since from the peculiarly specialized parts of the globe cancer rarely arises.

Hellin sums up his views on cancer formation with this rather significant hint: The therapy of cancer must practically be an effort to prolong the duration of life of cells. To lower their temperature, to shut off their fluid supplies, would seem, according to him, the primary indications.

In an interesting biologic study regarding cancer, Hellin (Das Carcinom; eine biologische Skizze, Leipzig, 1898) starts out with this general statement, which, of course, will find general acceptance, that between the duration in life and fecundity of a given animal or vegetable organism there is always a quite constant relation. This axiom obtains not merely for different species of animals, but also even for individual cells of both kingdoms. He makes it appear, moreover, that the natural lifetime of a cancer cell is brief; hence, its extra activity, its

tendency to rapid cell division, all of which are in obedience to this law. The more cells a cancer contains the more malignant it is, while it is universally accepted that the most malignant cancers are those which have the smallest cells, and that an increase in size of component cells gives less rapidity of cell division and diminished malignancy. This short but strenuous life of cancer cells would seem to be determined by extrinsic influence which affects its activity. Such influences, for instance, are the heat which hatches an egg, the warmth and moisture which effect the germination of seed, etc. When such external agency acts continuously, then we may speak of its effect as a chronic irritation and expect constant results. Among such irritations, trauma has always been regarded as constituting perhaps the most important — or, at least, the most demonstrable, but mechanical injury is only one phase of the general subject of irritation from without, which should be made also to include temperature changes, the influences of chemical activity, etc. Cancer of the stomach, for instance, which is perhaps the most frequent of all varieties, occurs where irritation is most constant, and, if we seek for those other parts of the body where cancer is most constant, we find them about the uterus, the breast, the rectum and intestines, and the face; in other words, in those positions which are most exposed to direct infection, or other irritation. We see the influence of dirt upon the skin, for instance, in cancer of the face in the lower classes; in cancer of the lip; in paraffin cancer, chimney sweepers' cancer, etc. These points of predilection are not merely those exceedingly exposed, but are those where regeneration occurs least kindly, i. e., at points where the skin and mucous membrane meet, because along these lines there is a variation in the type of cell structure. The only apparent exception is perhaps in the liver, which is still known to be an organ exceedingly capable of regeneration, and which is rarely the seat of primary cancer. This is due probably not so much to its functional peculiarities as to its protected

position, and yet even here we know what the irritation of gall stones may produce.

We have not yet learned what the mysterious influence is which in most cases controls the size and shape of a growing mass and converts it into an organ or a part of one type or another. We may call it polarity, or call it what we will. At all events, we cannot refuse to recognize it. In cancerous growths it would seem as if this particular influence were lacking or had not made itself completely felt, because in cancer there seems to be absolutely no regulation of the process of cell growth which proceeds widely and without purpose, following only the mechanical law of growth in the direction of least resistance.

It is interesting that observers like Hellin, who find little to commend in the parasitic theory of cancer, nevertheless cannot explain the rapid cell growth of tumor formations without invoking the hypothesis of some mysterious irritation. The Germans, for instance, are always talking about "chronischer Reiz," and at the same time explaining nothing of the statements and demonstrations of others with regard to the decided parasitic nature of this "Reiz." It is an easy thing to state with a certain pompousness of expression that increase of cells in a cancer is due to their relatively strenuous and shortened lives, which is to be accounted for by the persistence of a chronic or intermittent irritation. This explains nothing and should not be accepted as of much value. It is a statement, however, which probably no one will challenge, but it leads us to seek further for the nature of this alleged irritation for which no adequate explanation has been offered as coming from the cells themselves, and which can only be conceived of as an element intruded from without. The cell growth cannot go on indefinitely and eternally, and so comes necessarily an end, which is the breaking down of the cancer itself. The more active the growth, the quicker its end is attained. Even crystals by the rapid or slow deposition of the molecules which form them do

not grow forever, and there comes an end to the formation of every crystal, no mattter how favorable its surroundings for crystalline formation. Cell division is in some respects an expression of a struggle for existence, which is determined by a lack of sufficient nutrition. When nutrition is plentiful, cells attain larger size and labor less strenuously than when it is increased. At least, this seems to be the law of cell growth. This is helped to a certain extent by favorable temperature conditions. Increased cell activity leads to increase of heat and each influence seems to act upon the other. A third favorable condition is access of water, which seems to be an absolute necessity to animal and vegetable life. The embryo, for instance, is made up of about 87 per cent of water, whereas adult tissues contain about 70 per cent. The same variations are seen between young and old plants. They obtain, moreover, between different portions of the same organism. In the growing tree the most rapid alterations are seen in those parts which are most moist, whereas in the thick and almost dried substance of the woody fiber, changes are much less rapid. It would seem as if the malignancy of a tumor could almost be made out of its juiciness. Certain it is that the most rapid growing are the softest and most succulent. This fact seems to have been made quite clear by Kahane (Centralblt. f. path. Anat., 1895, p. 673), and Beneke has emphasized how often individuals loaded with edematous fat tissue succumb to cancer.

The reciprocal relations of cancer and tuberculosis have been the subject of very lively discussion for the past 20 years, one side holding with Hunter and Rokitansky, to an actual antagonism between the two diseases, the other, with Lebert, Weber and others, that their co-existence amounts almost, in some instances, to a symbiosis. It was in 1879 that Picot (Gaz. Hebdom., 1879), published a most complete report of a case of cancer of the liver, in which there existed, at the same time, large tubercular cavities in both lungs. This was, to be sure, before the acceptance of Koch's views

and his description of the bacilli of tuberculosis. The co-existence of the two diseases is an actual fact, while those lesions which most interest the surgeon abound in regions where mucous membrane and skin come together, but it is especially those particular lesions where both diseases appear in close proximity, or involve the same area, that most interest us. To be sure, this is almost equally true of syphilis and cancer for the development of epithelioma upon a syphilitic basis is almost as common as upon a tubercular. Cruveilhier reported, in his time, to the Anatomical Society, a case of so-called alveolar sarcocele, which he described as both cancerous and tuburculous. It will be worth while to take a little time, and with Claude (Cancer et Tuberculose, Paris, 1900), discuss these relations; first, the development of cancer upon a tuberculous basis, and second, the development of tuberculosis upon a cancerous basis.

It has been a well-known fact for some time that lupus is frequently followed by epithelioma. This was perhaps first insisted upon by Devergie, in 1854. When this transformation occurs, the disease rapidly spreads, the neighboring lymphatics become involved, and the lesion itself becomes much more painful than previously was the case. The most careful recent study of this morbid condition has been made by Desbonnets (Epithelioma et lupus. *These de Paris*, 1894). When this transformation occurs it may take place over a portion of an old lupus area which has become cicatrized, or upon the fresh active portion of its surface. Twenty-one times out of ninety, Desbonnets saw a cancer appear upon a cicatrized lupus area. The subject has been studied in Germany, especially by Busch, who described, in 1872, what is now generally known as lupus carcinoma. According to Busch this affection is particularly common upon the extremities, and is often co-existent with other tubercular lesions. The particular cases of lupus most likely to undergo this change, appear in the form of papillomatous ulceration, which becomes

cracked and fissured easily, but which yield readily to treatment by the sharp spoon. This has been called by Schutz papillomatous lupus.

In 1890 Garre published one of the first cases of lupus of the larynx undergoing cancerous degeneration (Beit. klin. Chir. III). Baumgarten and Crone studied other combinations of the two diseases about the mucous surface of the larynx, and in 1891 Zenker reported two quite classical cases of this character. In the first of them, there was ulceration of the esophagus, of epitheliomatous type. At the border of this ulcer it was easy to make out the presence of miliary tubercles in various stages of evolution, while within a little distance the mucous glands were in a stage of well marked epitheliomatous proliferation. His second case concerned a tumor of the vocal cords, which proved to be typical epithelioma, while, along in close contact with it, were unmistakable foci of tubercular disease containing bacilli.

In pulmonary consumption, cancerous neoplasms have been repeatedly observed in connection with the tubercular lesions. Thus Friedlander has described a pavement epithelioma with pearly bodies involving a lung cavity. (Fortschrit. d. Med. 1885, No. 10.) Menetrier thinks that the sclerosed tissue around such a cavity constitutes particularly favorable soil for the development of the primary epithelioma. Schwalbe has also reported a similar case of cancer, developed in the wall of a lung cavern (Virchow's Archiv., Vol. 149, p. 329). The consideration of questions like these has led Ribbert to raise the question whether the disorganization of epithelial arrangement produced by the tubercular lesion may not be the exciting cause of the epithelial proliferation.

With Crone and Zenker, one must admit that the tuberculous process is at least capable of acting as an irritation which, like any other continued irritation, may provoke epithelioma, while, at the same time, it probably also lowers local tissue resistance. Warthin has reported somewhat recently a strik-

ing case, which is as follows (*Am. Journal Medical Science*, July, 1899): A woman of 40 could not nurse her 11-months' old baby, because on the right side was no milk and because the left breast was painful and the nipple retracted. In this breast pain increased and a small tumor, hard and tender, appeared which grew rapidly with axillary adenopathy. Exploratory puncture returned pus containing tubercle bacilli. Subsequent operation revealed the presence of a number of tubercular nodules in various stages of degeneration, while, at the same time, there was a very distinct epitheliomatous formation in the connective tissue stroma and around the nipple and the lymph spaces. The reporter considered that the tubercular process preceded the cancerous. He also reports a second case of a cancer of the breast associated with tuberculosis, in this case the tuberculosis appearing to be the second in the order of precedence.

Dufour (*Bull. de la Soc. Anat.*, Fev., 1898), has studied an endothelioma which he thought to be of arachnoidal origin, which lay in contact with a focus of tuberculous ostitis at the lower end of the spinal column. The tumor did not appear to be infiltrated by tubercle, but inoculation gave a positive result, which could only be attributed to the presence of bacilli penetrating from the neighboring tubercular focus. Ribbert believes that the rarity of cancer transformation of visceral tubercular lesions is due to the rapid caseation which tubercular foci so placed undergo, the conditions being different from those obtaining in lupus of the skin.

Lubarsch (Virchow's Archiv. III., p. 281), studied carefully the reports of autopsies in the Pathological Institute at Breslau for a period of twelve years. His analysis of 6,536 reports shows that 2,688 (i. e., 41 per cent) died of tuberculosis, and 569 (i. e., nearly 9 per cent) died of cancer. Of the 2,668 tubercular patients, 117 (4.4 per cent) were cancerous. Of the 3,868 non-tubercular patients, 452 (11.7 per cent) were cancerous. Of the 569 cancerous patients,

to reverse the figures, 117 (20 per cent) were tubercular, and of the 5,967 non-cancerous patients, 2,251 (42.7 per cent) were tuberculous. These figures will give a general idea of the relative frequency of the co-existence of these two diseases; that is in a general way, that from 4 to 5 per cent of tubercular patients suffer also from cancer, while about 20 per cent of cancerous patients suffer from tuberculosis. The figures of Lubarsch have been fairly confirmed by results elsewhere by Zenker, Cordua and Loeb.

The two diseases may be met with together, under the following conditions: (a) Independent co-existence where neither one seems to be in any way related to the other; (b) Metastatic cancer developed upon an old or recent tubercular lesion; (c) Primary cancer actively appearing as a secondary infection; (d) Chronic tubercular lesion developing upon or near a cancer; (e) Simultaneous development evincing almost a symbiosis.

The term cancer in this connection should be understood in its more comprehensive significance implying more than mere epithelioma, though the latter is the most common of these manifestations in connection with tubercle. Iscovesco (Bull. de la Soc. Anat. 1888), reported to the Anatomical Society of Paris, 1888, a case of sarcoma of the lung, simulating phthisis, where there were most distinct sarcomatous nodules in the pleura, with infiltration of the base of the lung, existing along with extensive tubercular cavities and a complete series of distinct disseminated tubercular granulations. Reich (Arbeit, a. d. path. Inst. zu Gottingen, 1893, p. 167), has reported a cerebral tumor composed of a combination of glioma and tuberculoma. Clement (Virchow's Archiv. Bd. 139, 1895), has reported an endothelioma of the submaxillary region, complicated with tuberculosis. It occurred in a woman of 52, and recurred after the first operation so that a second attack was made upon it. Portions removed at this time gave the picture of endothelioma only, whereas the first

specimen was distinctly tuberculous as well. Clement has also reported other cases; for instance, cancer of the lower jaw, with tuberculosis of the cervical lymphatics; another of cancer of the breast, with tuberculosis of the axillary lymphatics; and another of cancer of the stomach, with ulceration of the mucosa, and, at the same time, distinct tuberculosis of the mesenteric lymphatics, and of the liver, without any trace of metastasis in these latter structures. Crawford (*Lancet*, 1892, p. 195), has described a scirrhus of the breast in which there was an abscess. In the tumor itself there were neither bacilli nor giant cells, but the axillary lymphatics were distinctly tubercular. I have myself recently treated a case of epithelioma of the palate accompanied and followed by tuberculosis of the cervical lymphatics on both sides.

On the other hand, numerous observers have reported cases of tubercular lymph nodes transformed into malignant lymphoma. Askanazy (Ziegler's Beitr. zur path. Anat. III., p. 411), and Cordua (Arbeit. a. d. path. Inst. zu Gottingen, 1893), have both reported instances of this character where tumors have recurred after operation and have finally led to the death of the patient. I have myself seen within the past year and a half at least two cases where this combination seemed to me extremely evident, although in neither instance was I able to follow them up in such a way as to permit of a careful report which might positively establish the statement.

Ricker (Archiv. f. klin. Chir., Vol. L., 1895), has reported the following most suggestive instance: A boy of 15, who had for many years voluminous tumors upon the lateral region of the neck, was operated in 1890. Four years later another operation was undertaken because of a new collection of masses in the same region, but was found to be so difficult that it was not fully completed. Section showed a distinct type of malignant lymphoma. The lad soon began to run down, the tumors of the neck became adherent and

ulcerated, other similar formations appeared, and the patient finally succumbed with paraplegia. At the autopsy lesions were found in the neck, in the thorax, around the bronchi, in the lungs, in the adrenals, and in the vertebral canal. At this latter point, the lesions seemed to amount to those of a generalized lymphosarcomatosis. While this diagnosis could be made with a microscope without doubt, it was found at the same time that there was advanced tubercular disease in the neck, with caseation. Dietrich (Beit. zur klin. Chir. XVI. 1896), and Fischer (Archiv. f. klin. Chir. 1897, Vol. LV), have also reported very characteristic cases in which the association of malignant lymphoma and tuberculosis was evident; thus Fischer reports 12 patients, of whom 4 died. Freudweiler (Arch. f. klin. Med. 1899), also has described recently an association between lymphomatous lesions and lymphatic tuberculosis.

Muller is quoted by Ricker to the following effect: A woman was operated on for tumor of the breast, considered sarcoma, which, however, was not subjected to a microscopic study. The operation was incomplete and two years later there were found in the breast two distinct tumors, one the size of an apple, the other the size of a pigeon's egg. The patient seemed to be affected with a general sarcomatosis. The former of these two tumors presented all the characteristics of a typical lymphoma-sarcoma. The latter contained distinct evidences of disseminated tubercle, and within its interior a distinct caseated mass, around which tubercular bacilli were easily found.

Tubercular infection complicating an already present tumor is probably the least known of the various processes here reported. There is no question, however, but that tubercle bacilli may penetrate into a cancerous growth and give rise there to tubercular foci, which latter may undergo the ordinary changes common to such lesions in other parts of the body. Baumgarten and Crone (Arbeit a. d. path. Inst. zu Tubingen, Bd. II.) re-

port, for instance, the following: A woman of 44, operated on for a small papilloma of the larynx, which when examined was found to be a small epithelioma. Some months later it recurred, tracheotomy was done, and the examination of portions of the tumor revealed the presence of distinct tubercular granulations. This was followed by extirpation of the larynx, in which careful study showed a combination of cancer and tuberculosis, the same association being found in the lymphatics of the neck. Baumgarten, moreover, has observed about the same combination in a case of cancer of the rectum which was complicated by most evident tubercular granulations in the cancerous tissue. Friedlander (Virchow's Archiv. Vol. LV.), has briefly reported the details of a case of cancer of the stomach, developed upon the base of a round ulcer, which base was surrounded with tuberculosis. Cordua (Arbeit. a. d. path. Inst. zu Gottingen, 1893, p. 147), studied a cancer of the esophagus secondarily infected with bacilli and came to the conculsion that the cancerous surface served as a point of least resistance and was attacked accordingly by the bacilli. Claude (Cancer et Tuberculose, Paris, 1900, p. 64), has reported the instance of a man of 61 entering the hospital with an intense diarrhea which had lasted for four months, and who at the same time had most marked cachexia. The autopsy showed extensive tubercular leisions of the large intestine, the lungs were also involved, while in the stomach a large cancerous tumor was found, surrounded by distinctly tubercular leisons. Evidently a portion of the tumor itself was breaking down with tubercular ulceration.

The following instance, illustrative of the close relation between injury and cancer growth is reported by Steinhause in a recent Polish journal (*Medycyna*, 1900, No. 47.) A woman of 40 applied a blister to her forehead on account of headache. As a result of this, there formed an ulcer which would not heal, and, in spite of constant treatment, suppurated and discharged for five months. After that length of time the

base of borders were excised and the defect filled by Thiersch grafts. After a few weeks, ulceration began again at the point of operation and the Thiersch grafts were once more tried. Microscopic examination of the excised fragments showed the borders of the ulcer to have become cancerous. The case seems the more interesting as showing the peculiar effect of a chemical irritation applied for but a short time, since it is usually only long continued irritation which provokes cancerous growths.

REMOVAL OF AN UPHOLSTERER'S TACK FROM THE RIGHT BRONCHUS.

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The technical difficulties encountered in the location of metallic foreign bodies within the economy have been materially lessened by the use of the X-Ray. From an experience acquired in taking several hundred radiograms and in the routine use of sciagraphic examinations in my practice, I am convinced of the great value of the X-Ray in more than one department of medicine; and the following case, as illustrative of the utility of this agent in the field of physical diagnosis, for the certain and absolute localization of foreign bodies, is not without value.

On the evening of February 15th, Reba S., aged eight years, while playing around her home, carried in her mouth an ordinary umbrella-headed upholsterer's tack, and in some manner let it slip back into the pharynx and, as it eventually proved, through the larynx into the trachea, finally lodging in the right bronchus. The attention of the mother was attracted by the strangling and coughing of the child; and after shaking and inversion had failed to expel the tack, a physician was summoned, who, thinking that the tack might have lodged in the oesophagus, had the child swallow some dry bread in an effort to clear the oesophagus. Nothing further was done at the time.

The child became very hoarse and a rattling noise could be heard in her throat; that night she was very restless, and the next morning she had a severe spell of coughing which so exhausted her that she fell asleep again and slept for several hours. During the four days that followed the accident the

child's breathing was rather heavy and the rattling noise in her throat was still present; on the fourth day, however, she coughed up some mucus and blood, and with this the hoarseness and rattling disappeared.

Five days after the accident the child was taken to a physician who by means of the X-Ray located the tack in the trachea just at the bifurcation, but no attempt was made to remove the tack.

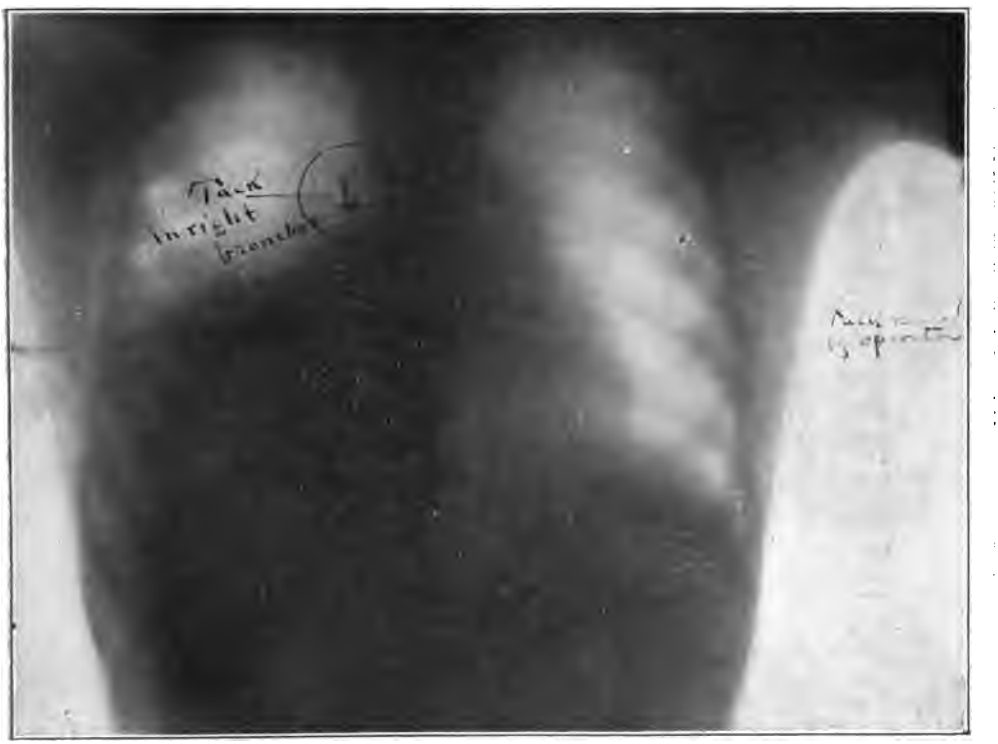
On March 10th, the child was brought to me. The mother said that every morning and evening the child had a paroxysm of coughing so severe as to completely exhaust her, but during the day she had only a slight hacking cough. Since the accident her temperature had ranged from 100 to 103, and her loss in weight had been constant, amounting in the aggregate to about ten pounds according to the estimate of the mother. The child was drowsy and slept soundly at intervals.

When the child was brought to me I made a sciagraphic examination and took a radiogram of the child's chest. With the fluoroscope the tack was readily located in the right bronchus, and the accompanying radiogram will show the tack in situ.

On March 14th the child entered St. John's Hospital, and on the following morning, under a general anesthetic, a low tracheotomy was made, the innominate artery being in evidence in the lower angle of the incision. On opening the trachea a large quantity of muco-pus was expelled. After cocainization of the tracheal mucosa, a large endoscopic tube was introduced and an attempt made to locate the tack by reflected light, but owing to the blood and muco-pus which was present the tack could not be seen. A pair of flexible laryngeal forceps with an elbow to seize the tack, which had been selected by Dr. W. E. Sauer who was associated with me in the case as a laryngologist, was then introduced through the tube, and an effort made to find and grasp the tack; but unfortunately the child became very cyanotic, and it was thought best not to make any further attempts at removal for

the present. The child recovered from the operation very nicely.

The trachael wound was left open with the idea that the tack might be expelled spontaneously; but though the severe coughing spells continued and a large amount of muco-pus was expelled, the tack remained in the bronchus. The



trachea wound closed spontaneously about six days after the operation.

On March 20th the child was again given an anesthetic and, in addition, the trachea was thoroughly cocainized and swabbed out with a solution of adrenalin. A powerful electro-magnet, which had been very ingeniously contrived under the direction of Dr. I. P. Chandeysson, was then in-

troduced through the tracheal wound and carried down into the bronchus in an effort to find and withdraw the tack: and although the tack could be felt with the magnet, it was too firmly imbedded to be withdrawn by this means.

Position in which patient was placed to introduce endoscopic tube.

The large endoscope tube was then introduced into the trachea, and taking advantage of the mobility of the trachea in the patient, was carried down into the right bronchus, but

upon examination with reflected light the tack could not be seen because of the accumulation of mucus in the bronchus. The laryngeal forceps used in the first operation were again inserted through the endoscope tube, and the tack was felt and grasped, but so firmly imbedded was it that several times the hold of the forceps was broken. We found that the head of the tack was larger than the lumen of the tube through which we were working, and when at length a firm hold on the tack was secured, the tube and the forceps were withdrawn simultaneously. Considerable hemorrhage followed the removal of the tack, owing to the tearing of the mucosa in pulling the tack along the passage. A tracheotomy tube was introduced, and the child put to bed.

With the exception of a slight rise in temperature four hours after the operation the child had no fever. For a few days after the operation a good deal of muco-purulent secretion was coughed up, but this gradually disappeared and an uneventful recovery followed. On March 31st the child left the hospital.

DISCUSSION.

DR. E. VON QUAST, Kansas City: I am reminded of a case in which Dr. A. P. Laukford, of St. Louis, removed a bead from the left bronchus of a child. In this case he used a long Nelaton probe to dislodge the bead from its imbedment, and it was coughed up to the incision of the trachea, where we caught it with a forceps.

I myself once removed a cockle-burr from the trachea which was located near the bifurcation of the bronchi.

DR. JNO. D. SEBA, Bland: While speaking of the success of the X-Ray we might consider some of the failures occasionally met with. Not long since I took a patient to St. Louis, to have the X-Ray locate a bullet. I couldn't find it by probing so I had the X-Ray put on it and the location was accurately made out between the tibia and fibula. The location was marked and I took the patient back home to operate on him but I couldn't find the bullet then. Whether this was my fault or the fault of the X-Ray, by throwing the shadow out of its line or whether the bullet slipped out of place I cannot say, but I dissected very accurately the locality mapped out and operated on both sides of the wound, and by conjoined touch of my fingers

hunted for the bullet, but failed to find it. Other physicians saw the case with me at the time but they also declared that the bullet was not there. I sewed up the wound and the bullet is in the leg yet.

DR. C. A. MITCHELL, Blythedale: I call to mind two cases, one of a cockle-burr, and the other a grain of corn in the trachea, in my early practice. The only means I had of locating them was with a probe. I have often thought of how we could use the X-Ray on that class of cases so that it would help us. While the X-Ray has thrown a great light on many of these cases and been a great help to us, still we must make use of a number of other means in making a differential diagnosis in some of these cases, where the X-Ray is not at hand, as is the case of the great majority of physicians throughout our State.

KOILONYCHIA AND ITS SUCCESSFUL TREATMENT; WITH THE REPORT OF SOME CASES.

By A. H. Ohmann-Dumesnil, M. D., St. Louis.

The diseases of the nails are of more than ordinary interest to him who can interpret them properly. Each one constitutes a symptom or a complex of symptoms which point to a condition at times limited to the onychial tissues, and at others indicative of a general condition of the organism of a more or less pathologic nature. Every one is acquainted with the appearance of the clawed nails in tuberculosis of the lungs, more especially when associated with the characteristic clubbed fingers. The distal phalanx is thickened, "clubbed," and bears a nail with a certain amount of curvature, and bluish, as well as accompanied by a generally unhealthy appearance. Every constitutional disease is associated with a characteristic appearance of or change in the nails, each one of which is an index of sufficient importance to lead to more thorough examination if it is to be correctly interpreted by the examiner. Whilst all this will be readily acknowledged by any one who has devoted some attention to the subject, it will also be conceded that the literature of diseases of the nails is apparently sparse, and that not much has been written upon them. In reality quite an amount has found its way in periodical literature, but scattered to such a degree and in different languages which have acted as a greater or less deterrent to him who desires to acquire a knowledge of the subject. With such difficulties to overcome it is easily understood that the general practitioner is unable to acquire even a superficial knowledge of that which should certainly be to him a most important part of his post-graduate medical education, were he but sufficiently enlightened in regard to it. His recourse

to text-books on skin diseases olny leads to failure and disappointment, as these appendages of the skin receive but scant courtesy.

The greater portion of the exceedingly short notices written on diseases of the nails are almost entirely confined to onychogryphosis and onychomycosis described in such a summary and perfunctory manner that but little of real worth can be extracted from them. The atrophic troubles of the nails are either omitted, so far as a consideration of them is concerned, or they are entirely omitted. In fact, the whole subject is so enshrouded in darkness that the nails would seem to have been relegated to the limbo of those subjects which constitute an *opprobrium medicinae.* Whether this is due to a certain idea that they are not deserving of more attention, or to a lack of study concerning their defects and troubles, or a self-acknowledged weakness to properly combat the diseases of nails, the writer will not undertake to determine. The fact remains, however, that there is not sufficient attention paid to these diseases in text-books and, as a natural consequence, a rather deplorable lack of knowledge respecting them. That this should exist can be easily understood when some authors have but one term for diseases of the nails, which really means nothing. It is a general one, whose meaning lacks in specificity and means nothing to him who may even be conversant with the diseases of the nails. What is referred to is the name onychia. This simply implies an affection of the nail or nails and means nothing beyond what any layman might say and does say when he applies for treatment. The meaning of the term is a very general one, and on account of this lack of specificity it is practically worthless. We will not further discuss this phase of the subject, but rather enter into a consideration of that concerning which we desire to say a few words and give some definite ideas concerning the recognition and successful treament of a condition which is by no means rare, but which, up to this time, has not received the recognition which it deserves.

The disease concerning which I desire making a few re-

marks is an interesting one in several respects. It is known technically as koilonychia and ordinarily as "spoon" nails. It is by no means a rare condition, but one which, unfortunately, has attracted but little attention from those who practice general medicine from the fact that very little importance has been attached to it, and patients afflicted with the trouble have paid but very little attention to it. Outside of any medical interest attaching to it, it is of a sufficiently marked character in many cases to attract attention to it, and it becomes, after a certain time, an object of more or less solicitude to the patient. Koilonychia may be observed in one or more of the nails of the fingers of one or of both hands, although the latter is not so frequently observed as its presence in a few fingers. The appearance presented by the nails which are involved differ in different stages of the disease. It may be stated in general terms that the beginning is characterized by a flattening and thinning of the nails. This is very slow but progressive, and this very slowness makes it unperceived by the subject of the trouble until it is well marked, and it suddenly dawns upon his mind that the nails are not normal. In addition to this there is a curving of the nail from side to side, which gives the characteristic shape that has given the name of "spoon" nail. This condition has been so marked, in certain cases, as to give rise to alarm, although it merely pointed to a deeper condition which was really of a serious nature. The thinning of the nails acts as a drawback in the performance of certain work, and not alone this, but there is also considerable pain experienced in the performance of many ordinary acts, such as writing, sewing, and other work requiring a certain amount of pressure to be exerted upon the pulps or sides of the distal phalanx. The nails themselves are not normal in color, and are very apt to be fissured longitudinally through any slight trauma. Another accident to which they are liable is that of breaking transversely, and more generally at the line of juncture of the nail and nail-bed, or at that point where the nail becomes free. These are some of the symptoms which patients will observe and to which they will call

particular attention. One point which requires particular attention is the dryness of the nail, which is so great in many as to amount to positive brittleness; whereas, in others, the nails are elastic, and susceptible of being doubled up without producing even a crack in the surface.

A peculiarity in this disease, and it is one which occurs quite often comparatively, is the involvement of only the distal half of the nail, the proximal or attached half presenting a normal appearance. In these cases we have the added peculiarity of the extreme thinness of the free extremity of the nail and its fissuring, with the presence of V-shaped areas of small portions of the nail, the small fissure extending upwards from the apex of the V. Unna has reported a case of complete leukonychia, in which some of the nails present the appearance of koilonychia. Heller, in his monograph on the Diseases of the Nails, presents the picture of one of his cases, as well as that of one of Rille, in which the characteristic appearance of the disease is well represented. In fact, it may be stated that koilonychia is a disease which, from the paucity of literature devoted to it, can hardly be regarded as being so rare. He who will but observe the nails on all the hands which he has occasion to examine will find that it is a comparatively common condition. With these few preliminary remarks I will now proceed to give the histories of a few cases which are typical, after which I shall proceed to a consideration of the etiology, pathology and treatment of the trouble. But a very few cases have been chosen out of a large number observed by me in the past few years.

Case I. Miss X., 18 years old, applied for treatment for a condition which she considered most peculiar and which she was fearful was an indication of a very serious general condition. An examination demonstrated the fact that the nails of both hands were affected and presented a classic picture of "spoon" nails. They were unusually thin, so much so that a slight pressure upon any one caused a sinking of the nail, which persisted for about fifteen seconds and evoked a rather sharp pain. In addition to the concave condition there ex-

isted other evidences of an atrophic process. The nails of the little fingers, of the right ring-finger, of the index fingers and of the thumbs showed small circular pits or depressions a little larger than a pin-point, and shallow, narrow, longitudinal furrows which could be determined more exactly by the touch than by ordinary inspection without a glass.

The patient stated that the thinning of the nails had begun about three years previously, when she began to menstruate. The establishment of this function had acted upon the nervous system, and probably with more effect, from the fact that she was of that nervo-lymphatic temperament so often observed in blondes, of which she was one. Her nervous condition had been much aggravated by worry over her nails and the fact that all her attempts to be treated had been discouraged by those medical men to whom she had applied and who merely gave her the consolation that the matter amounted to nothing. Careful questioning brought out the fact that she was suffering from nerve starvation and, in fact, was rapidly approaching that deplorable state known as neurasthenia, led me to prescribe internally a phosphorus pill of $\frac{1}{50}$ of a grain, gradually increased to $\frac{1}{25}$, to be taken three times daily during meals. Locally, she was ordered to rub into each nail thoroughly and carefully twice daily, the following ointment: —

℞ Stanni Oleat. (P. D. & Co.) ..... ʒj.
Lanolini puriss,
Ung. aquæ rosæ ..... *aa* ℥ss.
M.
Sig. Rub into nails twice daily.

At the end of five weeks I had the satisfaction of seeing the case practically cured. I had the patient call later when the nails had been completely renewed in growth and they were nominal in every respect. They were once more well formed, showed no atrophic changes, were of normal thickness and were once more what she called strong.

Case II. Mrs. Y., aged 32, with one child, was sent to me with an aggravated case of syphilis, which she acquired from her husband after the birth of her child.

When I saw her, she was divorced and forced to earn a living as a seamstress. Her syphilis had had a very depressing effect upon her for two reasons. In the first place, she desired to keep her malady a secret, no one outside of her family physician being aware of the true nature of the case. In addition to this, her being sent away from home for treatment on account of the severity of her case worried her. Her syphilis presented the lesions of a disseminated squamous syphilide attacking the entire body with the exception of the face. Both the dorsal and palmar surfaces of the hands were affected in a marked manner and this eruption had proven quite refractory to the treatment administered. The nails of some of the fingers presented the typical appearance of koilonychia. The nail of the right index, the ring and little fingers offered the same changes. On the left hand, the nail of the thumb, of the middle and of the ring finger also presented this appearance. Atrophic circular depressions could be found in all of them, but no furrows that were at all marked. No particular medication was ordered for the nails beyond rubbing them with the same ointment used on the eruption. Internally, a rather radical mecurial treatment was given. As the syphilis improved the koilonychia did, and this latter has disappeared, although the luetic condition is far from being completely healed. The entire result has been a most satisfactory one, the patient being particularly gratified at once more having normal nails which are strong, and free from all pain on pressure. The color, which was cyanotic, is now pink, and the improvement is plainly discernible. In fact, the nails are as nearly normal as they could be found in a syphilitic who is progressively improving.

Case III. Z., a young man of 26, applied to me on account of his nails, which troubled him chiefly on account of their appearance. They presented the typical appearance of the disease although not in a very marked degree. It was sufficiently so, however, to have aroused his solicitude and made him apprehensive that it possibly presaged some very serious condition. He stated that he was in charge of a rather important depart-

ment of a railroad and had much work of a mental nature to do and many cares upon his mind. It could be easily seen that he was troubled in mind and restless in spirit. He did not rest easily on account of his many duties and the added trouble which he had on account of his local condition, did anything but conduce to his physical or mental well-being. He was in such a state that he was rapidly bordering on a general breakdown. All of his nails were affected, more especially the distal half of each one and his constant care in keeping his nails pared down had led to the small fissures so often observed in cases of this sort. His endeavor to prevent a further extension of the fissures by paring had led to the production of a number of triangular notches producing a saw-like condition of the nails. These were thin and their beds appeared anemic, as evidenced by their pale bluish color. The treatment in this case consisted in both management and medicines. Strict injunctions were given not to pare or in any other way disturb the nails mechanically. In the next place, hygienic rules were given and such exercise advised as would tend to increase vigor and muscular tone. Locally was ordered the ointment to be applied to the nails as given in the history of Case I. Internally, the patient was ordered to begin with a $\frac{1}{50}$ grain phosphorus pill during meals, this being gradually increased to $\frac{1}{25}$ grain. In addition to this the following Asiatic pill was ordered to be taken after each meal.

℞ Acidi arseniosi..... ..... gr. iij.
Pulv. piperis nigris..... ʒiij.
Ext. gentian..... q. s.
M. ft. caps. (No. 5) No. 60.
Sig. One capsule after each meal.

Under this treatment the patient improved steadily in all respects, but the most marked change for the better took place in his nails. During all this period it was not necessary for the patient to quit his occupation or to modify it in the least degree, his improvement progressing with the treatment.

Case IV. W., a young unmarried man of twenty-eight,

came to me for the treatment of erethematous skin disease of the face. He stated that he was an accountant and was also engaged in the occupation of soliciting sales for the firm of which he was a partner. As he detailed his history, his nails attracted my attention, and a closer examination showed them to be rather larger than normal so far as their width was concerned. In addition to this they were quite thin and inclined to be concave. The case was one of koilonychia, although not a very marked one. The nails did not show any tendency to fissure, and yet their thinness was quite marked. An oral examination showed that the young man was worried and his strength overtaxed; he himself remarked that his nervous system was run down. Although he presented what would be regarded as a good physical condition, his nervous organization was evidently below par. He was fidgety, restless, and presented the evidence of one who was dissatisfied with matters. Whilst he had never done any manual labor to amount to anything, he bitterly complained of the appearance of his nails. He deplored the fact that his nails no longer presented the normal appearance which they formerly did, and he acknowledged that he felt very sensitive on the matter of the change in his nails. As his cutaneous trouble depended upon the same cause as the original affection a simple soothing lotion was ordered for his face, and the same treatment as in Case III. for his nails. Progressive improvement took place, and his nails whilst not yet restored to the normal, bid fair to be so at no very distant future.

Many more cases could be cited, but those given are sufficient to give an idea of the trouble, the conditions present, and of the treatment which has proven successful. The examples which have been mentioned are not selected cases, but rather a few taken at random, to illustrate some different forms of the disease. It may have been noticed that in these cases no mention has been made of the toe-nails. This has been done advisedly as in none has there been any involvement of the latter. As a matter of fact, I have found that there is no im-

plication of these, and but a very few are mentioned by those authors who have contributed anything on the subject. So that until more are seen in this location, it would appear rather premature to make any extended remarks upon this particular phase of the subject.

An interesting question connected with the disease under consideration is its etiology. All those who have written on koilonychia, dismiss the entire matter in a very few words and have very little or nothing to say on its etiology. It will, perhaps, be better to sum up their views and then draw those conclusions which seem to be legitimate in view of the appearance, treatment, and other facts connected with cases which have been observed, including the changes which have been noted. As has already been stated, the available literature on the subject is sparse, and in no instance has any extended consideration of the subject been made by any author.

H. Radcliffe Crocker says:* "Spoon nails, in which the nail is thinned and concave from side to side with the edges everted, and with hollowing to a less degree, sometimes anterio-posteriorly, have been observed in some wasting diseases, but also there are few cases on record where the etiology is obscure." This will certainly appear very short and unsatisfactory to any one desirous of being informed on the etiology of this disease, and it certainly shows a certain amount of want of interest in the matter.

We are treated to more on the subject by Dr. Julius Heller† who states that in a case observed by him in a servant girl of 25, nothing was observable beyond the fact that she was chlorotic. He quotes Prof. Rille, of Innsbruck, who reported a case to him in a peasant's daughter of 35, who was anemic and in whom the disease had existed since childhood. At a meeting of the Berlin Dermatological Society, Max Joseph presented a case of koilonychia complicated by total leuconychia. He regarded the leuconychia as being due to the general anemia of the patient, although others who were

* Diseases of the Skin. Philadelphia, 1893, page 834.

† Die Krankheiten der Nagel. Berlin, 1900, page 134.

present, contended that it could only be explained through the action of the subungual hyperkeratosis which was present. Heller states that in Joseph's case it existed only in the most slight degree and was completely absent in his case.

Prof. A. Jarisch,* after quoting Heller and a few other authors in which he rejects Unna's theory, because it might appear plausible were the same conditions always observed and in every case, concludes that a definite and conclusive explanation cannot be given until microscopic examinations of a satisfactory nature are made, in which opinion a number of authors share.

Joseph Zeisler† in speaking of furrows in nails and their causation by systemic diseases, says: "More rarely observed, yet somewhat related to the foregoing, is an anomaly consisting in a sort of excavation or central depression of the nail plate, due in all probability to a process of shrinking in the nail bed. This condition has been described by Crocker as spoon nails, and elsewhere as koilonychia."

From the opinions which have been quoted above there can remain no doubt that the subject of the etiology of koilonychia is involved in a great deal of obscurity. Any one who will examine into the histories of the cases observed and of those detailed by writers cannot fail to notice that one underlying fact is apparent in all, and this points to the inevitable conclusion that the disease before us is a trophoneurosis manifested by an atrophy of the nail plate as well as of the nail bed. The coincident presence of leuconychia is merely confirmatory of the cause, and the general state of the organism in the patients is of such a form as would encourage neuratrophic changes in the different anatomical parts of the skin as well as in its appendages. We are here brought face to face with a condition which has factors which make the entire matter a most puzzling one and correspondingly difficult of solution. Whilst we may understand that all the nails of the hands are

* Die Hautkrankheiten. Vienna, 1901, page 1032.

† Trophic Affections of the Nails. Jour. Cut. and Genito-Urin. Diseases, 1901, page 511.

not affected it is rather difficult to explain the fact that the toe-nails are exempt from the process. These questions are still sub judice; but there can be no doubt that confirmatory proof of the fact that koilonychia is a trophoneurosis is furnished by the success which attends a treatment directed to an amelioration of the nutrition and general toning up of the nerves, more especially the sympathetic system, which is generally understood as being instrumental in bringing about trophic changes. The whole subject is a most interesting one, and worthy of serious study at the hands of sound investigators. If an interest is awakened in this nail disease we have no doubt that there will be many who will devote time to its further elucidation.

Equally as unknown and of as much interest is the pathology of this trouble. Whilst post-mortem examinations will show some changes, any thorough pathologic examination will have to depend upon the examination of biopsic specimens. There is no doubt that there exists a shrinkage (schrumpfung) of the nail bed, and this, by diminishing the nutrition of the nail, brings about a consequent atrophy. The nail itself becomes thin and its attachment to its bed weaker and weaker, leading gradually to a curving of the sides which are not so tightly attached. Hence the development of the concavity which is observed. This question of pathology is one which requires a great deal of research, and it is only a lack of material which has prevented examination of a satisfactory nature. No one will consent to sacrifice a distal phalanx for this purpose, and in no other way can satisfaction be obtained.

What is perhaps of more interest to the practitioner is the successful treatment of the condition. It may be well to premise that the nails are very slow to respond to any therapeutic measures, as they are endowed with no sensation and derive all their nourishment from the nail bed, there being no circulation in the nail itself. It is by a slow process of absorption that nutrition is established, this determining the reason for such marked changes following a slight disturbance

of circulation such as will follow a failure in the trophic nerves in affording the normal stimulation necessary to establish a proper circulation. It will also serve to explain the fact that quite some amount of time is necessary to obtain any result; and the reason why females are benefited more than males is that the former are more patient as well as persistent in carrying out a treatment. In order to obtain permanent good results a long period of time is often necessary, but such result can be attained. It should always be impressed upon patients that this is a *conditio sine qua non*, and those who are not ready to stand a long siege might as well not undertake the cure of koilonychia. We have seen patients who refused a long course of treatment come back for dehiscence of the nails and cheerfully submit for any length of time. It is well to tell of the possibility of this and warn them of it. In those cases in which the cause is Raynaud's disease too much must not be promised. It is pretty well established that the cause of symmetrical asphyxia of the extremities is trophoneurotic in nature, and unless the course of the process can be arrested little hope can be offered for a complete cure of either one or the other of the diseases. So that much depends upon the proper selection of a case. That is to say a patient who will not be willing to carry out the treatment for a long time had better not be encouraged to begin with it, as he will be doomed to disappointment and his physician to failure.

This is not the only point to observe. Much care should be exercised in the proper choice of remedies as well as the methods to be used in their application. As in all questions of therapeutics, no haphazard or guesswork can be indulged in or continual changes made. For the purposes of local medication I have found the diluted oleate of tin to be the best. It is a true nail tonic, and it is a consistent one. Some German writers have used the oxide of tin, but they have not reported particularly brilliant results from its use. In fact, the oleate of tin must be very properly made or it will fail of its purpose, and I desire to say that the make of Parke, Davis & Co., of

Detroit, is that which has best served my purpose in all cases. The method of application should be with a nail polisher, as this will insure its penetration into the nail substance. But little of the ointment need be placed upon the nail before it is rubbed in, but it must be very thoroughly applied. So far as the general treatment to be followed in koilonychia, as much or even more care must be exercised in the choice of the remedies used. The remote cause of the tropho-neurosis must be determined and the treatment directed to that. Thus, in Case II., reported in this paper, the cause was syphilis and the treatment was directed exclusively to that, although it would have completely failed in a non-luetic patient. Of course, it is necessary that the physician possess a good knowledge of general medicine and of the remedies particularly adapted to the neurotic conditions observed in the patient under treatment. This it is which perhaps makes the treatment of nail diseases so difficult and demands so much more at the hands of the medical practitioner. Too many of the latter class look upon affections of this nature as of very secondary importance, when really the whole fault lies in their unwillingness to acknowledge their inability to successfully treat a case. The very paucity of monographs and articles on diseases of the nails is evidence of the fact that little attention is paid to them and a corresponding lack of knowledge in regard to them exists. Koilonychia in particular is worthy of extended study at the hands of medical men, as it is a trouble which is rich in its indications of general neurotic trouble in some cases. So little has been written upon it and so few cases have been thoroughly examined that a most fertile field is opened to those who will devote time to its further study. The pathology of the disease is still unworked, and a thorough study of this particular portion is certainly destined to yield rich and useful results.

It must not be forgotten that this particular deformity of the nails, like all others, forms a most useful indication to various systemic troubles and is worthy of more consideration than has been heretofore accorded to it. Those books which

speak of it, incomplete as the subject-matter devoted to it may be, are deserving of serious study on account of the suggestions which are made and which would lead to a further development of the matter. A closer study of the disease will inevitably lead to suggestions of treatment for many cases which are looked upon as incurable and some real progress as well as useful information on a large class of obscure diseases will be made. One need not specialize his practice to do this, and a thorough consideration of the various points involved will, beyond all doubt, benefit the medical profession by affording to it something real and useful as well as tangible.

ACROMEGALIA.

By S. M. Reynolds, M. D., King City.

About three weeks ago I was requested by your committee to prepare a paper on a subject with which no doubt most of you are somewhat familiar, yet which I believe few of us today understand.

"ACROMEGALIA."

The subject is interesting only in that it presents a field for investigation as yet unsettled, and, as we believe, imperfectly understood, namely, "The relation between Acromegalia and Gigantism, and the responsibility of a pathological condition of the Pituitary ganglion as a causative factor in both." But before we proceed to the consideration of these points, we will give a brief outline of the disease as it appears.

It is not easy to understand why a disease presenting so many physical deformities peculiar to itself, should go unidentified until only sixteen years ago. And while we may find the condition frequently reported under the names of various associate maladies, the first recognition of its separate pathology belongs to Dr. Pierre Marie, of Paris, who in 1885 noticing the similarity of two cases in his wards at that time, began an investigation which led to the identification of a disease since frequently called Marie's Malady, in honor of the discoverer, and which he named "Acromegalia" from the compound Greek word signifying great extremity, and refers to a condition of hypertrophy of all the extremities of the body, viz.: hands, feet, head, nose, chin, tongue, labia and genitalia, also the ends of the long bones of the body, such as clavicles, ribs, and the bones of the extremities, as well as the vertebrae, the scapulae, and the sternum.

This hypertrophy when found symmetrically distributed gives the patient an enormous increase in stature and bodily weight, without remarkable deformity, yet when unevenly distributed results in deformities corresponding to the extent of the hypertrophy.

SYMPTOMS: The symptoms may be described as objective; including physical deformities,—and subjective; as pain, reflexes, neuroses, and the disturbance of the special senses. Among the first objective symptoms to attract attention are the hands and feet which soon become greatly enlarged and are broader and thicker than normal, having a spade-like appearance, and have been called "bottle or barn door" hands.

This hypertrophy is not alone of the bones, the skin and soft parts partaking of the overgrowth. It is not oedematous but firm on pressure. The lines in the palms, which in oedema become obliterated, are increased in depth and the other markings stand out prominently. The fingers are short and thick, though not clubbed, the nails are short and appear too small for the hands; the feet and toes present the same general appearance as the hands and compared with the limbs and arms, are disproportionately large. The head is enlarged, elongated, rough and uneven. The face presents a most striking appearance. The malar, superciliary, and parietal eminences become prominent, especially the occipital protuberance. The lower jaw becomes much exaggerated, and out of proportion to the rest of the face. The chin often projecting far beyond the superior maxilla. The chest is large and capacious, the clavicles, the ribs, the sternum and vertebrae being quite noticeably affected, resulting in kyphoses and other attendant deformity, these points of hypertrophy to a degree corresponding to the early ossification of facial development, nor is this overgrowth limited to the osseous structure alone. The nose, lips, tongue, palate and the soft tissues of the hands and feet, taking on an increased thickness and enlargement, proportionate only to the bony prominences they adorn. The scalp is thick and deeply furrowed, the hair coarse and stiff, the ears forced into prominence by the heavy

zygomae stand out in relief. The voice is coarse and husky, due to the increased size of the vocal organs. Among the subjective symptoms, are first, headache, which is usually most constant and severe, in some cases demanding resection of the nerve trunks; along with this may occur disturbed vision, and hearing becomes indistinct. In women, menses cease to appear; in men, sexual appetite is no longer present, later dyspnoea may set in with cardiac hypertrophy.

The appetite is usually increased, in some cases gluttonous, the patient bolting his food to his utmost capacity; intense thirst may prevail. The reflexes may or may not be disturbed.

Before passing to the diagnosis, I wish at this point to present for your inspection a case characteristic of the condition just described. Case report: —

Name, Chas. Harleman, age 46, bachelor. Family history: Father in perfect health at 70; mother died at 69 of dropsy; three aunts (maternal) died of paralysis; one brother died of tubercular necrosis of femur.

Farther history negative. As child patient appeared unusually healthy and well developed, up to eleventh year, when he received an injury to left ankle followed by extensive necrosis of the tibia; at the same time he had limited necrosis of lower end of radius, — apparent restoration in both. Two years later reports having had three convulsive attack, extending over a period of nine months, — has had no recurrence. At twenty-five was attacked with severe headache, at recurring intervals which gradually grew worse until in 1892 Dr. Lamphear, then of Kansas City, resected the supra-orbital and auriculo-facial trunks, affording patient much relief. Patient also complained of dull pains over various other parts of body, supposed to be of rheumatic origin.

About that time the hands and feet began to attract attention, by their increased size, followed soon after by distinct enlargement of the lower jaw, the head, the nose, tongue and lips, in the order named. The shoes increased in size from $6\frac{1}{2}$ to $8\frac{1}{2}$. The gloves proportionately. The hat from No. 7 to No. 8.

The collar from $15\frac{1}{2}$ to $18\frac{1}{2}$. Height from 5 feet 10, to 6, $2\frac{1}{2}$, though during last few years resulting crevico dorsal kyphoses has reduced the perpendicular to about the original height. Weight increased from 175 to a little over 200.

Recent measurements are: perpendicular 5–10; length, over spine, 6–3; circumference of head, occiputo-frontal, $25\frac{1}{2}$ inches; from occiput to mental eminence, $14\frac{1}{2}$ inches; to center of chin over nose, 21 inches.

Special Senses: Sight impaired with evidence of neuro-retinitis; hearing, not acute; olfactory, almost absent; taste, unimpaired; heart increased, cardiac dullness, evident hypertrophy.

Lungs show perceptible dullness on percussion over apex of right lung, with slight rales.

Liver and spleen negative. Kidneys by urinalysis present no evidence of pathology. No microscope used.

I had almost neglected to report a small tumor of right epydidimus, apparently tubercular.

We now pass to the diagnosis. Though in some respects presenting points of similarity to many unlike conditions, we usually experience no difficulty in differentiating this disease from those with which it might be confused, namely rheumatism, rachitis, otitis deformans, elephantiasis and myxoedema, if we remember that in acromegaly we have a true hypertrophy, more or less general in its distribution over the body.

Rheumatism is most apt to be confused with this disease in its early development during the severe pains and the first appearance of the enlargement, yet when we consider the pain entirely removed from the seat of growth, not increased by motion, the absence of temperature and special deformities, we encounter no difficulty.

Rachitis: History, age, nourishment, deformities, facial expression.

Otitis deformans: Special shape of head, absence of prognathaus jaw, size of nose, tongue, etc.

Elephantiasis, condition only of skin limited to single member.

Myxoedema affects only soft parts oedematous.

Gigantism: This brings us to the etiology of the disease where we can best consider the relation of these two types of deformity.

Without going into detail we wish to say that the consensus of opinion to-day favors the belief that these two types are identical, both having for a cause a disturbance of the sympathetic nervous system, a result of a diseased condition of the Pituitary gland. In this connection I cannot do better than to quote from the valuable paper of Dr. Guy Hinsdale, awarded the Boylston prize of Harvard University, 1898, to whom I am under many obligations for his kindness in furnishing me the article. After a most exhaustive research covering the various theories, advanced since Marie's first description of the disease, including such men as Van Recklinghausen, Holschewinikaw, Mosse Horseley, Hofmeister, Virchov, Helemed, Klebs, Sternberg, and many others, and after a study of clinical report covering nearly all the cases of which we have any account, including autopsies in many, he concludes with Marie:—

"That acromegaly and gigantism are similar if not identical disturbances of Pituitary metabolism the beginning in early life before the full stature has been reached and producing comparatively symmetrical results extending over a considerable period; the other developing after maturity extending its overgrowth force, at the points of least resistance to growth, or as has been before intimated in this paper at the points of early development, namely, hands, feet, nose and lower jaw.

In both the essential process is a more or less rapid overgrowth reaching a definite limit and soon followed by correspondingly rapid decay. The ultimate result is the same in both, the situation of the outgrowth is strikingly similar. There is the same disturbances of the sexual functions, the only difference being in the shorter course, in the adult form. The prevailing cause of death is the same in each. Giants usually developing the unsymmetrical or acromegalic form of

overgrowth before death, and as Marie concludes, acromegaly is gigantism of the adult, gigantism is acromegaly of the adolescent.

TREATMENT: When we reflect on the close relation between the disease and an altered state of the pituitary body borne out by autopsy reports, if we hold this gland responsible for the disturbed state of metabolism, our line of treatment would seem to be indeed limited, yet a great deal can be done with appropriate remedies, in alleviating pain, relieving attendant dyspnoea, and such other complications as may arise; while in the animal extracts we have promise of more permanent results. Caton, Mendel Lanceriaux, Rolleston, Diuke Merinesco Schlesinger and S. Salxes Cohen, each report having used extract of thyroid gland with good results. A few have used a preparation of the pituitary, yet I can find no clinical reports crediting it with any change in nutrition. In the case before you, I have been using thyroid extract along with antilithic remedies, together with the static breeze, over nerve centers, with little sparks over extremities. The patient, who was confined to house when I first began this treatment, say sixty days ago, is now able to be about in tolerable comfort, and while we realize that our limited knowledge of a dystrophy so extensive places it beyond the reach of our most cherished hopes and the undeveloped means of directing the members of the antitoxin group, are as yet in the experimental stage — we do believe that in this direction lies our hope of anti-auto-intoxication.

DISCUSSION.

DR. JOHN D. SEBA BLAND: I think Dr. Reynolds' case a very interesting one. Inasmuch as the etiology of such cases is not well understood, all theories so far advanced concerning the cause of this condition are in my opinion not well founded.

Of late years great inquiry has been made as to the function of the thyroid gland. It has been found that certain disorders of this gland have the power of stunting the growth of the individual who possesses the same. I

refer to cases of myxoedema producing cretinism. The question may be asked what is a cretin, and the answer invariably must be, a cretin is an individual whose growth and development has been arrested, both mentally and physically. A boy seven years old that develops cretinism, will to all purposes be seven years, mentally and physically, when he is twenty-one years old, unless treated by giving him extract of thyroid gland. Now, then, if a disorder of the thyroid gland has the power to produce cretinism in a person, may not a diametrical condition of the thyroid gland produce exactly the opposite results in another person? If one disorder of the thyroid gland may stunt the growth of a person, may not an opposite disorder of the gland produce opposite results in another person? May it not be possible that the thyroid is responsible for a dwarf here and a giant there? Would it not be advisable for physiologists to investigate along this line? Maybe some one can discover something along this line that will put his name alongside that of Jenner, Beaumont, Virchow and Lister. Personally I know a woman with a large goitre. Children born of her before this goitre developed were of normal size, but children born of this mother after the development of the tumor, two of them acquired a height of over six feet and two inches, and a weight of from 250 to 300 pounds before they were twenty-five years old. Looks a little like cretinism, doesn't it? The thyroid gland of these people's mother may, or may not, have had anything to do with the size of these boys. But I am inclined to believe it did. I would ask that all doctors under whose observation cases of giantism or acromegalia come, to carefully inquire into the condition of the thyroid gland of their patient and also their parents.

Dr. D. Griffith, Kansas City: The thing which attracted my attention more than anything else was the fact that this man in his younger days had an attack of tubercular osteo-myelitis and the close relationship between perverted nutrition commencing with the tubercular bacillus in the cancellated structure of the bone might have caused this. At least it does this,—it calls our attention to the close connection of the tubercle bacillus and this condition.

MEDICAL EDUCATION.

J. D. SEBA, M. D., BLAND.

The title of this paper would admit of the various topics that should be taught in the medical colleges, and how they should be taught. It is not the intention of the essayist to enter into the subject of what should be and what should not be taught, or how it should be taught. As a rule the lecturers and teachers in institutions where the practice of medicine is learned are well up in the art of communicating their knowledge to others, and will not need any suggestions on that point from the essayist. My line of thought will be more directed to the thoughtful consideration of the medical student. When I say medical student, I do not only mean the young men who are attending medical colleges, but I mean all medical men who are studying diseased and pathological conditions; and studying to find the remedial agent to combat that condition. To be most successful in this we must possess an inherent love for the profession, which if cultivated will develop into *matured ability*. Excepting the two first years in a medical college, which are spent in the study of anatomy, physiology, chemistry and materia medica, the medical education is, after all, only a practical training, that extends over a period of years, beginning with his matriculation and ending when his professional career ends.

Do not understand me to give countenance to the idea that a preliminary education is not necessary. The old saying: "Depth of knowledge is the best foundation for a successful career," is as true as ever. Of all the ordinary branches of education it seems to me language and literature are more essential than others. With it he can clothe his future knowledge in fine dress parade, and the public will admire

it, and give him credit for it. Whilst without it his medical light will hide under the bushel where it will only illuminate himself and no one else will see it. An electric battery full of electricity is of no value unless such electricity goes out of its storage and is thus utilized for some practical purpose, — so with medical men, unless his knowledge and ability flows out of him and benefits some one else it is dead property on which he has to pay interest, but yields no return.

How many medical men do we meet, that, when called in to see a sick child suffering with fever, congestion and a catarrhal inflammation of the mucous membrane, which at this stage cannot be said if it is going to be simple catarrhal or bronchial pneumonia, whooping cough, measles or scarlatina, and although his prescriptions meet the indication and does all that anybody could do as far as the patient is concerned, yet will, when asked by the parent, "What is the matter with the child?" reply, "I don't know." Do you know that these three words, if used by a doctor, does a great deal to lower his prestige with the public? The public expects you to know, and the confession that you don't know, although the truth, "the whole truth, and nothing but the truth," should never be made; much better take time and explain that the onset of many diseases are so similar that no one can tell just what is coming. That, although you see the black clouds rising, you feel the humid air, you see the lightning, you hear the roll of thunder, but you cannot tell if it will be simple rain, or a storm, hail, or blow-over altogether. That you will watch the case and meet all the emergencies as they arise. You can tell them all you do know, which is undoubtedly a great deal more than they remember, but don't ever tell that you "don't know." It is an admission that pours cold water on your reputation; rather tell them all other truths, but keep that one that you don't know to yourself. When you enter the sick room remember that you come there to bring good cheer and sunshine, not cloudy weather.

Never complain or mention your own infirmities. The patient and his friends have troubles of their own, and do not want to hear yours. When inquiries are made of your own health, tell that you never felt better in your life, or that you feel sixteen years younger than you really are, and that you will try and make them feel like you in as short a time as possible. The patient is paying you for your visit, therefore try and give him his money's worth by making your story as pleasant as possible. If you are late, as will sometimes happen, explain to them that you were attending another patient who was needing your service very bad, or that you were busy in your office, or that you were attending medical society where you were associated with the leading lights of the medical profession, and that you were now intellectually better prepared to do them good service. But whatever excuse or apology you do make let it be along professional lines; never tell a patient or its parents that you have been out fishing or hunting, or that you had attended the races or had been watching a dog fight just across the corner; never tell them that, because it will lower you in the estimation of your patients. Always remember that your patient is the employee and you are the one who is employed. That they are the masters and you are the servant, and that according to law and custom an employer may at any time discharge the employed. Thus it behooves the employed to always try and please his master. But it is also true that you cannot control the disease unless you control your patient; though this is true, rule them with a gentle hand and unconsciously to themselves. A little training and experience and no trouble will be experienced along this line.

It may seem to some of you that I digress from the title of my paper. Medical ethics are so closely interwoven with medical education that one can hardly tell where one begins and the other one ends. Both are essential to success, and success is what we are after. The human mind is so constructed that we are constantly forgetting things, hence we should be constantly learning, otherwise, we shall fall back

and soon be at the rear of the great army of medical practitioners.

In order to learn we must learn to follow our work up with enthusiasm. If that is the great motive power that drives us we will follow our work with delight and pleasure.

Once a doctor asked me how to keep abreast with the times. To this I will answer "work," study and believe. That work and study are essential none will deny, but many think that belief is not necessary. But if you don't want to believe what you hear and see you had better not hear or see anything. By this I don't mean to say that you should swallow and digest all the rot that is published. But if anything emanates from a good reliable source take it and investigate and believe as much of it as possible. When I think back I remember how I have heard the germ theory hooted, yet germs have come to stay. What bitter battles have been fought against "vaccination!" What all has been said against diphtheria antitoxin, yet all these things have come to stay; they are all my particular pets; I hope you have not said an unkind word against them when they were infants and wore their swaddling clothes. How many men have I seen fall by the wayside because they were unbelievers! First they would lose faith in one thing and then in another, and so on till they had lost faith in themselves and I can assure you that when you lose faith in your ability to be of any practical aid to your patient that the public will lose faith in you also. Thus faith is as essential in the practice of medicine as it is in religion. The dabbling in politics is another stumbling-block to medical men.

The man who neglects his practice and goes to campaigning and making stump speeches to save this Republican Government from falling into the hands of the opposition or to save the country from the powers, as it is generally distinguished, will in the near future find himself a broken-down politician with no enthusiasm for his medical career. When once our enthusiasm for our medical profession is gone we are like a railroad locomotive without fuel, water and steam, — a lifeless

piece of machinery. Therefore, gentlemen, keep up your enthusiasm if you wish to keep abreast of the times.

That the doctor does not amount to very much politically is proven by the fact that out of the many thousand doctors of Missouri only a few have been elected to Congress and only one Governor. The Scripture injunction that you cannot serve two masters at the same time is true of doctors as well as other people. You cannot serve the Lord and devil at the same time; if you wish to serve the Lord stick to medicine, but if you wish to serve the devil go into politics.

The last General Assembly passed a medical practice act which is far better than any one ever passed before. It provides that all candidates who want to practice medicine in the State shall pass a satisfactory examination before the State Board of Health. In a paper read before this Association on "Legal Sanitation" just one year ago, I have given my views in regard to a medical practice law. After studying the matter again from different standpoints I must hold the opinion then expressed, that the practice should be ruled and regulated just the same as our public school system is regulated. State and county boards of health should be replaced by State and county health commissioners, elected by the people for a definite period of time, and should be vested with same powers by the State as our county boards now are. These health commissioners with the aid of stenographer could handle the affairs more satisfactory than the State boards whose members are scattered over the State promiscuously and who must call a meeting in order to do business; whereas a health commissioner could devote his whole time to the business, make annual reports to the Governor who could submit such report to the next General Assembly with such recommendation to that august body as he deemed essential. The county coroner of each county should be county health officer and work in conjunction with the State commissioner. This change made would at once facilitate the business. The covital and mortuary statistics (which are now wholly neglected)

should be taken by the county assessor at the time he is listing the property of the county, on blanks furnished by the health commissioner.

I have given this matter some time and thought but the subject is entirely too extensive to elucidate the same in connection with this paper. But your servant would be pleased to — at a future time — give his views upon the subject of "A Medical Practice Law," not as it is but as it should be.

MEDICAL EDUCATION.

A. W. McALLESTER, M. D., COLUMBIA.

When we consider the magnitude of medicine, embracing as it does the saving of human life, the preservation of armies and navies, the protecting of the peoples in the commercial relations of the world, it is not to be wondered that this Society — guardian of the medical profession — should annually appoint some one to open the discussion as to how men are to be born into our ranks.

When I look back but a few years I can recall with pleasure the great advancement made in the teaching of medicine in our own State. Placed as I have been, and still am, I can bear testimony to this great improvement in the methods of teaching as is shown by the examination of the new recruits.

The educational system now in vogue in this State will compare favorably with that of any Western State.

The old adage that "when a boy is not fit for anything else he is to be dumped into the medical profession," is a thing of the past. Now it requires a well-trained mind before entering upon the study of medicine. Men cannot and should not undertake to train their uncultured minds in the science of medicine. Just how much previous training is necessary is not and cannot be settled by any abstract iron-clad rule, as minds differ so widely. Some think well after a High School education, others only after taking a College degree. What would be good training in one case would be overtraining in another, and would destroy independence of thought. It is just another case of the grindstone and the ax. Some axes require more grinding than others to put an

edge on them. All certainly require a good High School training. I mean by this a training that is given by schools that articulate with Universities. The Common School-High School-University combination forms the true American system of public education. All medical schools that form a part of a University should offer a combined course looking to the granting of the A. B. and the M. D. degrees in six years. The difficulties in the way have been that the academic schools would not arrange a practical course leading up to and broadening out the knowledge of collated branches. I am proud to say that the University of this great State has made all subjects elective, and a student, guided by the medical school, can be guided in the choice of such electives that he will receive the two degrees in six years.

Another fundamental requirement is a good moral character. There is no calling where honesty and morality are so fundamental a requisite as in a doctor, and some one should be made and held responsible for the character of the student. Without honesty the profession would be unworthy the respect and confidence of the public.

The profession is agreed that the laboratory is the method to teach the sciences of medicine, and that it is futile to attempt to treat the sick till the normal man is well analyzed. The hospital is only the finishing laboratory, wherein all sciences are made subservient and utilized. The laboratory classes must be in small sections and so much greater the necessity when it comes to examining a sick man, where only two or three can examine.

Another question in medical education is the value of the Amphitheater Clinic. It has two values. While the student does not see all the details or get his fingers on the case, he can observe technique, he can see a display of skill of the great men in surgery. This stimulates study and imbues the student with a laudable desire; not much more can be said of it from an undergraduate standpoint. From the graduate standpoint much can be said,— it is an essential factor. The operator is

"up on his metal;" thought comes and flows rapidly, and much improvement is made; it extends from operator to visitor. Men who operate but seldom, receive many valuable lessons. These clinics are of great value to the operator, commercially. These clinics should be encouraged by the profession. These men should not be compelled to go through the drudgery of teaching students. It requires too much of their valuable time. These clinics may be multiplied *ad libitum*. It lets our good men come to the front. It stops the multiplication of schools without adequate support; it being a well established fact that the medical school of to-day and the future must have a heavy endowment, as medical education is perhaps the expensive form of education, requiring as it does the most expensive of laboratories and equipment.

One word on the teaching of specialties. They should not be made a leading feature of the college course. These belong to graduate work. It is really a question if so many specialties ought to be encouraged, though I am free to admit they do many nice things, and poesess a higher order of skill. They can only thrive in our large cities. Doctors that go out to the great masses of people should be able to handle nearly all classes of diseases, perhaps not so dexterously as his neighbor specialist, but at least ought to know the limit of his own skill and not put an unnecessary expense on his patient. This would have a tendency to decrease the number of specialists.

I would make one suggestion to our schools: say once a month give a trial examination not by questions seriatim but have each student write upon some subject so as to broaden his views on medicine and fit him for a final examination before any State board. It would kill stuffing and cramming from a compend. It is a good training for the student; it teaches him to express himself well before any body of medical men. It would really be an impromptu thesis.

DISCUSSION.

DR. M. F. WEYMANN, St. Joseph: I believe if the medical colleges would get down to the system of recitations as practiced in our universities there would be more work done. I don't mean to say that the lectures are a disadvantage in their present shape, but there should be reviews periodically, say hourly or weekly, and the student's work should be assigned so that he may know what is expected of him. Another thing is the method of examination.

When I first heard of the decision of the American Medical Association allowing one year's advance for literary work, I thought it was a good measure. It stands to reason that any one with a full collegiate training has more mental discipline. But on that point I have changed my mind, for under present conditions the freshman course offers such a vast amount of laboratory work and preliminary teaching that advancement necessarily means the loss of this valuable training. Hence, if a man's mind be ever so bright and well-disciplined from collegiate exercise in other fields, his professional training must, of necessity, be full of deficiencies owing to the loss of actual work in medicine. This was impossible under the old regime, but under the present *graded* courses no opportunity exists for "making up," because every student has all his time occupied with the work of the class of which he is a member. Experience shows that the advance on the literary work is certainly a bad thing in our present work.

I think the amphitheater idea is a first-class one.

THE SUBCUTANEOUS USE OF PARAFFIN IN DEFORMED NOSES, WITH THE REPORT OF A CASE.

By Hal Foster, A. B., M. D.

Roe, of Rochester, has done a great deal of original work in the correction of nasal deformities by surgical methods. Many others have followed him by devising several ways of correcting sunken-in noses, such as follow syphilis perichondritis, leaving a saddle-back nose.

The rhinologists meet cases of this kind, who are unwilling to submit to any surgical procedure. Corning, of New York, in December, 1891, published his paper on the use of solidifying oils by injection into the tissues for mechanical purposes. (See the *Record*, Dec., 1891.)

The writer read a report of a case by this method, by Dr. Heath, of St. Paul, Minn. Dr. Gersuny, of Paris, was the first to use paraffin in saddle-back or sunken-in conditions of the nose. His articles were published in France, Germany and America. His results were very good indeed, and his patients greatly improved in facial appearance. Dr. Scanes Spicer, of London, recently reported a case in which he had successfully used paraffin in a saddle-back nose.

The paraffin should be sterilized and every precaution taken to have the nose as clean as possible when the injections are made in order that blood-poisoning may not take place. The paraffin melts at 100 to 105 F., and solidifies at about the normal temperature.

In the great number of cases now being reported, I have failed to find any case where the drug was absorbed. Some writers caution against the use of the drug, saying that an oil embolism might be supervened by its use. Dr. Meyer, of Berlin, has used the injection on animals without any bad

results. In some of his cases a very mild inflammation took place before encapulation. He also used the drug to obliterate small-pox marks. Dr. Herman Smith, of New York, in last week's *Journal*, reports several successful cases where he had injected the paraffin.

Taking all this testimony from so many able men, I decided to try it myself. The patient was a boy, nineteen years old, from near Cowgill, Mo. He was suffering from constitutional syphilis (this was the cause of the nasal deformity) and was being treated for that disease by his family physicàn.

The paraffin was sterilized, and a syringe devised by Gersuny was used. While I have only used the drug in one case, it was so successful that I feel justified in reporting it. A few drops of 4 per cent solution of cocaine was first injected inthe part of the nose where the paraffin was to be inserted. I then, under as thorough antiseptic conditions as I could, injected one teaspoonful of melted paraffin in the depression of the nose. It was rapidly moulded by the fingers and very soon became settled and the appearance was greatly improved.

There was no pain during the operation. Ice may be applied to the nose for several hours after the operation to prevent inflammation.

I think there will be little danger of the drug doing any harm if rapid pressure is used immediately after the injection is made. Dr. Gersuny says several of his cases, six months later, had typhoid fever, but the high temperature had no effect on the paraffin, it remaining in perfect apposition.

It is my opinion that this treatment, carefully used, will be of great assistance to the rhinologists, in correcting many of the unsightly deformed noses which he meets. By so doing he adds greatly to the facial appearance of his patients.

NOSE-BLEED.

By Hanau W. Loeb, A. M., M. D , St. Louis.

It may seem to some a waste of time to devote any considerable attention to the study and discussion of nose-bleed, perhaps since the vast majority of cases never fall under the physician's attention, and since it is only exceptionally that a case presents any unusual features. And yet, when it is remembered that almost all adults have suffered, or will suffer, from nose-bleed at some time in their life, it becomes a matter of interest, if not of importance.

Apart from this, a number of fatal cases have been reported, notably by Hubbard, Vulpian, Guibert, Mathews, Semon, Murchison-Zuelzer, Panas and Richet, Levy and Dock. Kompe calls attention to nose-bleed as a premonitory symptom of cerebral disease and Marx reports a case in which epistaxis was so alarming in a pregnant woman, that labor was induced in order to save the patient's life.

A little investigation shows that while the number of insignificant cases is legion, there are those in which the condition is either serious or annoying. These are common enough to fall into the practice of every physician. Besides, the cases which we have grouped as insignificant, those in which the quantity of blood reaches only a few drops at each attack, are often sufficiently unpleasant to the patient to cause him to seek medical advice.

Of course, many seek relief by the use of home remedies. We hear of the marvelous effects of dropping a key or a piece of ice down the back, or dashing cold water suddenly upon an exposed portion of the body, or of brown paper and vinegar applied to the lip or back of the neck, or of cobwebs inserted into the affected nostril. That these remedies are of some value must be conceded, for the first three undoubt-

edly act in a reflex way, causing contraction of the vaso-constrictors, narrowing of the vessels affected and therefore lessening of the hemorrhage sufficiently for coagulation to occur. Cobwebs are probably locally hemostatic, full of septic possibilities, not decreased by the remains of dead flies undevoured by the crafty spinner of this hemostatic web. Of course these objections condemn it in the physician's eye — it will take years to root the superstition out of the people's practice.

In one case I have seen a piece of fat salt bacon properly trimmed and inserted into the nostril, used as a preventive against nasal bleeding. While I cannot commend this practice, it certainly possesses some points of unexpected merit. The salt keeps the plug from becoming putrid and the fatty surface renders its ready removal easy without recurrence of the hemorrhage. Naturally these may be accomplished without recourse to such a remedy, and far better by methods which will be described.

Nose-bleed may result from hemorrhages from communicating cavities, from blood vomited from the stomach, from blood coughed up from the lower respiratory tract, from the middle ear through the tube, and from wounds, tumors and other lesions of the epipharynx.

In considering the etiology of the other forms of nose-bleed, or true epistaxis, I follow, in large measure, the classification of Rosenberg (Heymann's Handbuch; die Nase, p. 700), as it is evidently the clearest and most logical given by any author. The causes may be divided into general and local.

The general comprise the following:—

1. Disease of the blood-vessel walls.
2. Changes in the composition of the blood.
3. Changes in the blood pressure.

1. Diseases of the blood-vessel walls.

(a) Arterio-sclerosis.

(b) Brittleness of the vessels due to other conditions, such as predisposition to tuberculosis, etc.

One of the earliest symptomatic indications of arterio-sclerosis is nose-bleed, and hence epistaxis in those beyond the middle age of life must be regarded as a matter of general, rather than special interest. In fact, in a fair proportion of cases, beginning at this period of life, it is the significant predisposing cause of the hemorrhage. Its influence is readily appreciated when we consider how prone an arterial wall is to break when it has become brittle through arterio-sclerosis. As this affection is associated with that chain of diseases comprising kidney, heart and liver affections found so frequently in the older adults, in drinkers and in syphilitics, we must look beyond the nose, both for causes and results.

2. Changes in the composition of the blood, as manifested in —

(a) Anemia.
(b) Leukemia.
(c) Hemophilia.
(d) Purpura.
(e) Scorbutus.
(f) Measles.
(g) Scarlatina.
(h) Malarial fever.
(i) Typhoid.
(j) Variola.
(k) Erysipelas.
(l) Pneumonia.

In these diseases, the nose-bleed is practically a complication, uncommon in some, frequent in others, such as measles, typhoid, etc.

3. Changes in the blood pressure. These may be grouped as follows: —

(a) Exertion, such as running, lifting, etc.
(b) Exposure to heat.
(c) Alcoholism.
(d) Kidney affections.
(e) Vicarious menstruation.
(f) Plethora.

(g) Heart affections.
(h) Liver affections.
(i) Severe coughing, sneezing, etc.
(j) Adenoids by impeding the venous return.
(k) High altitude.
(l) Low temperature.
(m) Pregnancy.

The influence of these conditions in causing nose-bleed is obvious and requires no explanation.

The local causes are: —

(a) Large crusts acting as foreign bodies which wound the nasal mucosa.

(b) Wounds and fractures involving the nasal walls or contents. This includes a most frequent cause, viz., injury induced by the finger nail in the common practice known as picking the nose.

(c) Erosions in the nose; septal perforations.

(d) Nasal tumors, spurs and deflections.

While all these causes have their weight, the most common are picking the nose and erosion, in both instances the seat of the hemorrhage being on the cartilaginous septum, just within the vestibule. Whether we view the small ulcer as a result of the finger-nail traumatism or of infection of staphlococci or streptococci, the result is the same, for in this readily accessible position the great majority of nasal hemorrhages occur.

Such hemorrhages vary from the slightest to the most alarming. In many, the cases go on for years, the bleeding occurring from time to time, too insignificant to cause the patient to call a physician. In a fair proportion of cases the hemorrhages occur in adult life, being quite copious and alarming to the patient. These always consult a physician, and are those which we are commonly called upon to treat. Examination clearly shows the seat of hemorrhage, as already described, on the cartilaginous septum, just within the nose. Ordinarily, during the intervals a small round spot will mark the seat of hemorrhage, while during the attack the blood

may be seen coming out in jets from the small eroded artery.

It is common to see quite a number of small vessels, apparently newly formed, and visible through the mucosa, which seem to radiate from the point of hemorrhage. In a few instances, I have found, as a local cause, a sharp spur which had forced its way through the mucosa. In all these cases we may expect a history of alcholism, syphilis, nephritis or other causes which have been grouped under the head of changes in the blood vessels, composition of the blood or blood pressure.

We are assured, in these cases, that the hemorrhage has been exceedingly great, and that an impossible amount of blood has been lost. As it is the fashion to collect such blood in a pan or bowl of water, the patient or the members of the family either forget the water or overestimate the blood from the color of the bloody water and thus fall into the error of exaggeration.

We are further assured that all remedies have been tried without success.

The trouble lies more in overdoing than in underdoing. In their anxiety and excitement, things are done which prevent the coagulation of the blood in the broken vessel or which pull out the clots as fast as they are formed.

There are many reasons for the continuance of a nasal hemorrhage when once started. The vessel in the septal mucosa has not the advantage of lying in muscular tissue, to press upon it, and thereby assist in hemostasis; the mucous membrane is a tough, unyielding investment. When the soft clot fills up the nose, there is an almost unavoidable disposi- to blow it out of the nose, or to draw it back into the throat, either action dislodging the clot and starting the hemorrhage afresh. It is not uncommon for the patients to snuff water up their nose, likewise removing the clot as fast as formed. All other movements indulged in by the patient exercise an influence in prolonging the attack.

When the hemorrhage ceases for the time being the case is not concluded, for dislodgment of the clot and renewal of

the hemorrhage may occur at any time. This is encouraged by efforts made to clear the nose of obstruction and by further picking the nose just at the point where the bleeding originally started. Sometimes the epistaxis follows involuntarily, as from sneezing and coughing. Sometimes sudden change of posture causes it to burst forth anew.

The nervous element in these cases has its influence. Though some centuries have passed since the profession discarded the theory that the nose is the purge of the brain, it is still quite dominant in the minds of laymen who look upon diseases of the nose not only as a reproach, but as a vague indication of some deep-seated "head" affection.

So when the patient sees blood come, apparently without cause, from his nose, in a quantity greatly exaggerated by the personal equation and by the fear of consequences, when he sees, as it were, his life-blood ebbing away, without any seeming disposition to stop, he is not inclined to be cool, calm and collected, but nervous, anxious and excited, in keeping with the frame of mind of those around him. This very condition of things encourages hemorrhage.

It is remarkable how quickly things right themselves when the physician, who appreciates the situation and who recognizes the seat of the difficulty, announces that it is impossible for the patient to bleed to death and that the hemorrhage can be stopped in a moment.

The nervous features leave at once, and frequently the hemorrhage ceases without even the use of pressure. Time and time again have I been called to see a patient with epistaxis and have been able to arrest it by quieting the patient and friends, allaying their fears and discontinuing all the efforts which had been made to place the hemorrhage under control.

The treatment of these typical cases resolves itself into the immediate and the preventive.

The first of these is directed entirely to the point of bleeding. While we must recognize the influence of agents which affect the blood pressure, instances of which have already

been given, it is far better to arrest the hemorrhage by local means, just as in the treatment of a bleeding vessel elsewhere. Here, as elsewhere, pressure in some form is the best remedy. When it is remembered that the hemorrhage almost invariably arises from the vestibular portion of the septum, it will be understood that pressing the corresponding *ala nasi* against the septum must arrest the hemorrhage, for by this means it is possible to press directly upon the bleeding point. When the bleeding vessel is just within the vestibule it is sufficient simply to grasp the nose with the thumb and index finger, but when it is higher up it is necessary to press the ala the requisite distance upward and backward.

Holding the nose in this fashion for five, ten or fifteen minutes generally suffices, even in the most obstinate case. Of course, when the bleeding point is beyond the reach of pressure directed in this manner, it can do no good, but such cases are exceedingly uncommon, unless as complications of those diseases included under the group of those causing a change in the composition of the blood.

No other form of pressure takes the place of that just indicated, where it will answer. The use of plugs of various kinds will stop the hemorrhage, but their removal is likely to cause a renewal of the bleeding and their presence to induce sepsis. The Simpson compressed cotton plug is perhaps the best, as it can be easily introduced and can be removed by taking away the central portion, leaving the layer next to the septum in situ for a longer time. In a few instances I have used a plug covered with rubber tissue where the hemorrhage was beyond the influence of pressure upon the ala. The removal of this form of plug is easy and the tendency to recurrence is lessened as the clots do not adhere to the dressing.

The most pernicious practice in the use of styptics. It is strange that many good practitioners who would not use a styptic in other forms of hemorrhages do not hesitate to apply it for the relief of epistaxis. They forget that in the nose we have rigid lateral, superior and inferior walls, a posterior

orifice which can be plugged, and an interior orifice which can be entirely filled, so that leakage is impossible where the blood has any tendency to coagulate.

Styptics cause a hard clot to form, and if the fortunate but uncommon result of clotting at the bleeding point occurs, the coagulum is hard and readily displaced, with renewal of hemorrhage. In addition there seems to be a strange affinity between sepsis and this artificially clotted blood, for infection so frequently takes place. I have recently had a case in which acute suppurative ethmoiditis followed this practice in the hands of another physician.

Of all styptics for nasal work, there is one which may be used without fear of infection, namely peroxid of hydrogen. I have been accustomed to use it to arrest the slight superficial oozing which sometimes remains after the finger pressure has been applied. A small pledget of cotton saturated with the agent is placed lightly in the vestibule and permitted to remain there for a few moments. Besides its hemostatic action, it decomposes the surface clots and renders the nose free from obstruction. After the cessation of the hemorrhage I use a few drops of the peroxid of hydrogen in the nose every few hours, for its action in decomposing the hardened and dried masses of blood and nasal secretion which rapidly collect and fill up the nose and which so frequently start the hemorrhage anew.

In this connection it may be well to mention one of the newer remedies which has lately come into vogue, viz., suprarenal gland. This agent has the property of blanching a mucous membrane to which it is locally applied, by powerfully stimulating the vaso-constrictors. The consequence is that almost all the blood leaves the part, causing naturally an immediate cessation of the hemorrage. This action continues as a rule for about two hours, after which there is a somewhat greater tendency to recurrence of the bleeding; the application is of benefit whenever a clot forms in the bleeding vessel sufficiently firm to hold when the full blood pressure returns somewhat increased by the secondary dilatation of the blood

vessel. It is of special service in those cases where the bleeding point cannot be reached by pressure directed upon the ala nasi, and in the form of the salts of its alkaloid, adrenalin, it may be used even in these cases.

After the hemorrhage ceases, steps may be taken to prevent a recurrence. Naturally the general and predisposing causes call for appropriate attention, particularly the changes in the composition of the blood and in the blood pressure. The local treatment may also be undertaken. In the milder cases, a ten per cent solution of nitrate of silver applied to the affected portion of the septum every second day will be very effective. At the same time the patient should use an ointment, preferably with some astringent agent, morning and evening, and perhaps an oily spray. In the more obstinate cases it may be necessary to destroy the bleeding vessel or erosin with the electro-cautery; this, however, is seldom required.

It is of great importance to remove all nasal obstructions which interfere with nasal breathing or which cause a change in the respiratory equilibrium of the nose. My experience is that the more capacious nasal fossa is more inclined to bleed than the narrower, very likely on account of its greater activity in nasal respiration whereby it is made drier and more susceptible to those changes resulting in an erosion or in the collection of dried crusts which invite removal by the patient's finger nail. A simple oily spray will in these conditions often postpone epistaxis indefinitely though the most certain and effective method is to restore the patency of the narrowed side of the nose.

When the plan of treatment here indicated is ineffective, which must be very rare indeed, it will be necessary to plug the affected nasal fossa throughout. I am not partial to the use of Bellocq's canula which was a few years ago a necessary part of the formidable surgical armamentarium given to the young practitioner, upon his entry into the profession.

It is essentially an instrument which is to be used in the dark and when no effort is made to discover the bleeding point.

Hence it has often been used in cases which should have been treated by more rational methods. With the aid of proper illumination and anterior rhinoscopy the nose may be plugged just as effectively and far more knowingly than by the other plan.

Naturally cases in which hemophilia is a factor are much more trying and require special attention. But it must not be forgotten that hemophilia is a general and not a local condition. We cannot have hemophilia of the nose alone; such a diagnosis generally proceeds from futile efforts and methods used for the relief of epistaxis. Occasionally epistaxis is the first evidence of hemophilia, but even this is most uncommon.

I hope that in this short paper I have made plain that epistaxis should be treated along the same lines which characterize the surgical treatment of hemorrhage wherever found; that pressure upon the bleeding point by means of the finger placed upon the corresponding ala nasa is the simplest and most effective means of immediate control of hemorrhage in the vast majority of cases; that the common styptics should never be used; and that due regard to the possibility of sepsis requires that all plugging of the nose should be done with great circumspection.

DISCUSSION.

DR. J. D. GRIFFITH, Kansas City: I will mention an experience I had with nose-bleed. Dr. Loeb did not mention one of the remedies which I used not long ago. I was riding on a train, and a gentleman on the train had epistaxis, which continued for a long time. Finally some one asked me to see him. I had no instruments with me, but found he had been drinking a quantity of ice water, and had a rubber stopper from a carbonated water bottle. I took that stopper and used it for a plug in the nose, and he had no further trouble. When I got home I had another case, and took a household syringe and inflated the rubber finger cot and put that in the nose, and succeeded in stopping the hemorrhage with that.

DR. CHAS. J. ORR, St. Louis: I personally feel deeply grateful for the excellent paper of Dr. Loeb. However, I am inclined to think rhinolo-

gists make too fine distinctions to be most helpful to the general practitioner.

Dr. Loeb has called attention to the accessory cavities and the danger of serious bleeding from one or more of them. I never saw but one case in which I felt sure that the hemorrhage came from the eustachian orifice, and only very rarely from the other cavities.

I feel he did not emphasize nasal growths as a cause of nose-bleed as much as their importance demands. In all cases of recurrent nasal hemorrhage I examine carefully for malignant growths, the early diagnosis being of the greatest importance.

I certainly agree that the bleeding point in a large majority of cases of epistaxis is the anterior inferior portion of the septum and due to trauma. My usual practice (when I have determined the bleeding is not in the anterior part of the nose), and the hemorrhage is alarming, is to pack the nose with gauze, after cleansing. I prefer gauze to cotton, and find it more effective. Frequently I pass a small urethral catheter along the floor of the nose into the pharynx then out of the mouth. This enables me to introduce from behind a ligature to which is attached a posterior nasal plug. I can with this prevent further bleeding through the posterior nares, or from the vault of the pharynx, by then packing the nose anteriorly. With gauze I can always control hemorrhage, no matter how severe. I no longer use styptics, but peroxide of hydrogen or sterile oil instead.

I want to call attention to the necessity of treating constitutionally many cases of nose-bleed, as nasal hemorrhage is not infrequently the result of some systemic fault or disease.

PROGRESS OF OPHTHALMOLOGY.

By C. Barck, M. D , St. Louis.

The report of the progress of ophthalmology must of necessity be short, as no epoch-making advance has been made during the past year. On the other side the edifice of this branch of science has been built out in the various directions of its different departments. The quantity of material published has been great. After sifting it, I will mention what is of more lasting value.

In anatomy and physiology nothing new is to be reported.

In the domain of optics, possibly the most important fact is, that the profession inclines more to the full correction of myopia. As well known, it was the accepted opinion that the use and the strain of the accommodation was the main factor tending to increase progressive myopia.

Therefore, in prescribing glasses, we under-corrected in order to avoid any possible strain of accommodation. As a result of the same reasoning atropine was used from time to time to paralyze the accommodation and to check the progress of the nearsightedness. This theory is now considered erroneous. Forster, of Breslau, advocated the full correction more than a decade ago, and was violently opposed by nearly the entire profession ; this antagonism has now ceased. A number of papers were read on this subject at the last meeting of the German oculists at Heidelberg by Heine, Pfaltz and Salzman, and there was not one dissenting voice that myopia should be fully corrected and the same glasses be worn for distance and reading until presbyopia commences.

Some interesting articles have been written on "periscopic lenses," which are superior to the common in myopia and astigmatism. As they can be readily obtained

in the market now, and at a reasonable price, they will doubtless come more and more into favor with the profession.

The data on "crossed cylinders," are too scant to admit of a definite opinion.

On the treatment of glaucoma and its final results Hirschberg, of Berlin, and Haab, of Zurich, have published large statistics comprising twenty-five and thirty years respectively; and both have endeavored to determine the final results by communicating with all patients treated for glaucoma. Both conclude that timely iridectomy is still the safest procedure, not only in inflammatory glaucoma but also in simple glauocma. Of Haab's 144 iridectomied cases the result was favorable: —

In acute glaucoma in 77 per cent.

In chronic inflammatory glaucoma in 57 per cent.

In glaucoma simplex in 71 per cent.

Of his fifteen cases treated medicinally the result was favorable in 40 per cent. Hirschberg's statistics are approximately the same.

Sclerotomy is inferior to iridectomy and takes the place of an auxiliary operation. Myotics were, as a matter of course, used in addition, but they cannot replace the operation in chronic glaucoma.

From extirpation of the cervical sympathic ganglion some good results are still reported; but most authors agree, that it should only supplement iridectomy in progressive cases; it is not to be done before iridectomy or sclerotomy has been tried.

The "open treatment" of cataract seems to meet with great approval in Europe, whilst in the United States, where it originated, it apparently gains little ground.

Nasal affections and affections of the neighboring sinuses receive undiminished attention. Many valuable contributions have been made on the anatomy and pathology of this subject during the past year.

Good results have been obtained again from the introduc-

tion of iodoform into the anterior chamber in cases of perforating infected wounds.

In ophthalmic surgery nothing out of the beaten path deserves mention. In severe cases of total symblepharon splendid results have been obtained by transplantation of Thiersch grafts. The same was obtained in certain instances of shrunken orbit, where an artificial eye could not be worn before.

Some larger statistics of enucleation of eyes in a state of panophthalmitis without any fatality, give additional proof, that, under antiseptic procedures and proper precautions, panophthalmitis is no contradiction to enucleation.

The photography of the fundus of the eye has made decided progress. Professor Dimmer, of Gray, demonstrated some photograms in 1899, at the International Ophthalmologial Congress in Utrecht; but they were unsatisfactory. Since then he has perfected the apparatus so much that he was able to demonstrate fair pictures of the fundus at the meeting of the Heidelberg Ophthalmological Society. The pictures are reproduced in the transactions of the Society.

Two show the normal fundus.

One, albuminuric retinitis.

One, glaucomatous excavation and retino-choroiditis.

The main feature of the apparatus is, that one-half of the dilated pupil is used, to illuminate the fundus, whilst the reflected rays emerging through the other half, produce the picture in the photographic camera.

TUBERCULAR PERITONITIS.

By S. E. Potter, St. Joseph, Mo.

Tubercular peritonitis occurs most generally between the ages of 20 and 40 years, but no age is exempt. Females are much more liable than males. It may occur as a lesion in phthisis, tubercular inflammation of the genito-urinary tract, as a result of general tuberculosis, and as a local inflammation.

There are several forms. We prefer the classification given by Warren in his Surgical Pathology: "Acute miliary tuberculosis of the peritoneum, characterized by sudden onset, a rapid development, a serous, or sero-sanguineous exudation; 2, chronic caseous and ulcerating tuberculosis, characterized by large tubercular growths, which tend to caseate and ulcerate, leading often to perforations between the intestinal coils, or by purulent or sero-purulent exudation often sacculated; 3, chronic fibrous tuberculosis in which the process may be subacute from the outset, or it may be the final result of the miliary form. Little or no exudation occurs in this variety, and the tubercles are hard and pigmented (Osler)."

This disease may be entirely latent with no evidence of its existence whatever; and the first discovery is often made by the surgeon who has to open the abdominal cavity for some other trouble, and finds the tubercular masses. This I have observed several times myself, when operating upon the abdomen. To my surprise, I have found both the visceral and parietal layers of the peritoneum infected with tubercles. In some the tubercular nodes were few, while in others they were numerous. Again I have known several cases where the patient made no complaint of bad health, until

the abdominal cavity began to fill with fluid, and, the swelling showing that something was wrong, caused the advice of a physician to be sought. If the cases were not operated upon at once, the peritoneal cavity became extremely distended, and when the operation was made, numerous tubercles were found which covered every square inch of the entire peritoneal surface, both visceral and parietal. In many instances there was extensive ulceration. Where the fluid is very bloody the ulceration is quite extensive, and sometimes hemorrhage into the cavity is free from these open surfaces. The accumulation of fluid is at times so circumscribed, that it resembles a cystic tumor, and this mistake is no uncommon thing.

I remember very well, some fourteen years ago, being called to examine a colored woman for enlargement of the abdomen. Every appearance indicated an ovarian cyst and from my examination I had no hesitation in pronouncing this to be the case. We prepared the patient for an ovariotomy, and started into the cavity, expecting to turn out a cyst weighing, with contents, twenty-five or thirty pounds. To our surprise the moment we opened the cavity, out came, with the fluid, all the intestines. We replaced the bowels, and found our cyst closely adherent to the abdominal wall in the shape of a tubercular peritoneum. After emptying the cavity and cleaning it out well with dry sponges we sewed up the wound. The woman made a complete recovery, and was, a few years ago, in the best health, doing washing work she had formerly followed.

While we were mortified over what we first thought was a serious mistake, we were most gratified with the results. I feel to-day after many years experience in surgery upon the abdomen that the case was one that would have deceived the best diagnostician; and the mistake should not have been so mortifying after all.

The first division of this subject, as given by Warren, is the most common, and the most favorable for treatment. How does the peritoneum become affected? Often as a result

of general tuberculosis, or it may occur in connection with pulmonary tuberculosis, or there may be tubercular glands. The mesenteric glands are often affected and enlarged from tubercular deposits. There is no doubt but that food contaminated with tubercular germs may give rise to this form of inflammation. We know the lymphatic glands throughout the body are most susceptible to inoculation, and may remain for some time in an indurated condition not showing any active symptoms. We not only have the cervical, inguinal and axillary, but we have the mesenteric at times in a hardened state. This infection may last for months or years without active manifestation. The fallopian tubes, as well as ovaries, are very common seats for tubercular masses; here we find, in most instances, their ravages severe; and from these points the spread is rapid. We have also in operating for appendicitis found the appendix extensively covered with tubercles.

In connection with our subject here, as to the sources by which the peritoneum may become affected, we would like to say that we believe tubercular bacilli may lie latent for years in some gland or portion of the body without any real manifestations until a favorable opportunity is presented; — then their identity is clearly shown. Who is it that is not infected with tubercle? It does not follow that there is any definite time of incubation. We have had many cases of perirectal abscesses of a tubercular nature, and have operated upon them, corrected the fistula in ano which so often follows, and have seen the patient live for years before showing symptoms of pulmonary disease, then finally a phthisis develop and the patient die. We all know that this is shown in families whose members gradually die off from tuberculosis, years intervening from period of inoculation until the disease shows itself in the lungs, joints, brain or peritoneum.

We are told in history that the celebrated Lennec, after a nick from a saw, while making a necropsy on a phthisical subject, thought that he discovered an example of inocula-

tion in a small tubercle in his skin. Twenty years afterwards this great physician was living and in good health, but he finally died of consumption.

The point that we desire to impress is, that the infection may reach the peritoneum as indicated above, but that the bacilli are slow in developing, may lie latent for years without any active manifestations, but congestions or impairment of healthy action of the peritoneum, either general of local, may cause the development of tubercular peritonitis. The periodical congestions that take place in the pelvic cavity of women, and the stasis that often takes place in the genital organs, account for the the frequent development of tubercular peritonitis in the neighborhood of the Fallopian tubes.

Severe constipation is, no doubt, also a source of tubercular development, and these two causes just mentioned, may account for its frequency in women. If we want to benefit the patient, an early diagnosis of tubercular peritonitis is certainly a most necessary thing.

As to the diagnosis DaCosta says: "Tubercular peritonitis generally occurs in those who have tubercle of the lungs, or enlarged caseous glands, and, when such persons complain of abdominal pain, and uneasiness, of soreness to the touch, of nausea and vomiting of diarrhoea alternating with constipation and losing flesh and strength; when the tender abdomen is tense, resistant, much distended in part with liquid, but especially with wind, and exhibits on its exterior the tracings of the convolutions of the intestines; when, in addition, there is edema of the lower limbs with fever, irregular, at times high, at times almost ceasing, and a growing cachexa, — we can hardly be wrong in presuming the signs of peritoneal inflammation to be owing to the presence of tubercle. Even when disease of the lungs is absent, or is not well defined, we shall generally be correct if the abdominal symptoms mentioned exist, and there are repeated attacks of acute and subacute peritonitis, in determining the peritoneal affection to be tubercular. Signs of great significance are

the presence of nodules in the rectum, and in the sacro-uterine ligaments, and of inflammation around the fallopian tubes. In some instances the disorder develops with rapidity, and has the aspect of an acute complaint. On the other hand it may be so great as to simulate an abdominal tumor; the disease is often mistaken for ovarian disease."

The prognosis of tubercular peritonitis is not so unfavorable if of the miliary variety, and attended with ascites, providing the proper treatment is applied. From the advancement made in the treatment of tuberculosis of all kinds, within the past two decades, the death rate from this trouble is at least one-half less than it was formerly. The second and third forms of tubercular peritonitis are far more than the first.

The treatment of this disease is, without doubt, most unsatisfactory where there is anything like advanced general tuberculosis. Where it is of the latent or local form, and is attended with an exudation of fluid, either serous, saneous, or semi-saneous, opening the abdomen, allowing the fluid to escape, the free entrance of the air, and then sewing up the wound again, has proven itself to be a most favorable procedure, and has surpassed all other methods in giving immediate relief. The question comes into the thinking mind: What are the benefits from allowing the fluid to escape, and not removing the tubercles, but in sewing them up in the cavity as they were found? The question is easily answered. It is an accepted fact that the riddance of the fluid eliminates the toxines that have been accumulating. These toxines are very poisonous. A minute dose of them has been known to produce marasmus. Another question that is more difficult to understand is, why does the entrance of air benefit? We all know that tubercular bacteria never attacks a large open wound, such as is made by the amputation of a limb, etc., but are most likely to originate in connection with contused wounds or slight injuries, or where there is stasis in a simple form. A reason given for this is that in large wounds, and surfaces, the fresh blood is invited to the

parts, stasis is readily relieved, and the lymph and leucocytes have the power of repairing the tissues and of absorbing or destroying the bacteria by phagocytosis. May not this be the "*modus operandi*" here? We think this is very probably true, and we further believe that the free entrance of air does temporarily, at least, suspend the power of these germs to propagate, and allow the leucocytes and tissues corpuscles to get in their work.

Morris, in a lecture on tubercular peritonitis, holds forth the idea that when the abdomen is open saprophytic bacteria are permitted to enter the cavity, and acting upon the tissues form a toxine that is fatal to the bacilli tuberculosis, and the surgeon should encourage the free entrance of air into the cavity when he makes this operation. He had made several experiments in his laboratory that seem to favor this view. He says further in support of the phagocytotic theory we have given above: "In some cases the bacilli are not killed by the toxines, but their growth is probably inhibited for a sufficient length of time so that nuclein brought by polynuclear leucocytes in the peritoneum can destroy them." He also states that if saprophytes could enter the abdominal cavity through the fallopian tube that we would likely have spontaneous cures without operating.

The application of iodoform to the peritoneal surfaces is highly recommended by Senn and others, so is the administration of the carbonate of guaiacol internally as a valuable antiseptic. Both of these remedies are not supposed to destroy the bacteria, but to neutralize the toxines generated by them. We believe in drainage with a rubber tube and not with gauze. Keep a tube in the lower angle of the wound so long as there is a discharge and it benefits. We have tried it in several cases and have never regretted it. We believe, on the other hand, if we had not taken this precaution that our work would not have been successful.

After the fluid is evacuated salt solution should be poured gently into the cavity with a pitcher, and not with an irrigator as the force from the latter will do damage. If a portion

is allowed to remain, it will be absorbed, or will get through the tube.

Out of the last ten cases of tubercular peritonitis upon whom we have operated, two died and eight recovered. The first one who died had what has been classified by Warren as the chronic fibrinous variety. There were extensive adhesions and the omentum was hardly recognizable. The woman died the second day. The second case was of miliary variety, there was extensive exudation of a bloody nature, and the omentum was one large mass that had to be entirely removed. This woman recovered from the operation, so that she could go about, but died six months afterward. The eight who recovered are well, and were in fairly good health when I last heard from them.

In tubercular peritonitis the peritoneum is sometimes very thick, the omentum and intestines are often adherent to the walls; and in opening the abdomen great care should be taken not to wound the bowel. It is also often very dark, and instead of the healthy appearance shown by the normal peritoneum, it is very dark and looks almost gangrenous.

EVOLUTION OF THE EYE.

By J. W. Sherer, M. D. (Un. of Pa.), Kansas City, Mo.

The renewed investigation of this subject has recently brought to my mind several phases of it which I have thought might not prove uninteresting to you as anatomists and pathologists. I have accordingly attempted not to present a descriptive account, complete in detail, of the numerous and complicated transformations of the organ of vision in its long passage from Coelenterate to Mammal, but rather to speak briefly of *certain aspects of its evolution* which to me seem more pertinent.

A study of the pathology of the human eye reveals a number of extraordinary and apparently incomprehensible occurrences which may not be fundamentally understood and correctly interpreted without a knowledge of certain remarkable facts which I wish to adduce in this paper.

Things that find their rational explanation only in the phylogenetic development of the eye are such troublesome clinical entities as the different *heterophorias*, *Daltonism*, the appearance of *chondromata* and *osteomata*, in the ocular tunics and finally that embryologic structure, the *hyaloid artery* which is a fleeting figment of anatomy during the ontogenetic development of the human eye.

The eye shows marked fluctuations in its process of improvement from age to age as evinced by the succeeding Branches of the animal kingdom. Its fate appears to have been that of a special sense appendage produced, improved, or suppressed, according to the need of the particular species. For example, the eyes in dibranchiate cephalopod molluscs, such as the cuttle-fish and squid, are among the most highly organized in the whole animal kingdom, whereas in certain other molluscs, as

the *Chitonidae*, Class *Cephalophora*, and the *Pectinadae*, Class *Lamellibranchia*, the *cephalic eyes appear ouly during larval development*, to be *replaced by rudimentary eyes on the edge of the mantle.* In still other molluscs of boring habits, which live in mud, or in the deep sea, or are parasitic, they *disappear* entirely.

A study of the different Branches of the animal kingdom, to my mind, leads to the conclusion that the relationship existing between them is rather that of *cousinship* than that of *offspring to parent.* The relation of offspring to parent which may have been very evident during the miocene era of kainozoic times must necessarily be less easy to trace now when the genera and species bear the inheritance of countless generations and the unaccountable variations from changing environment. Thus, referring again to *Mollusca*, which appeared in palaeozoic Devonion era, Classes and Orders which may have been as closely related as parent and offspring can be, now, after a lapse of time which has strewn the seas with the fossil wrecks of 2,000 extinct species of one Order alone, viz., the *Tetrabranchiata*, to which Pearly Nautilus belongs and which has but six species now living, now, we repeat, must necessarily show such changes in structure as would indicate but distant cousinship.

The tendency is ever to diverge just as the spokes of a wheel separate as they extend from the hub. Uniting such principles as these with those which naturally govern the growth of a special appendage it will be readily seen how difficult is the task of tracing a regular descent for the eye.

The special sense organs are all derived from modified neuroepithelium but the development of the eye is very different from that of the nose and ear and its course of evolution is much longer.

I believe that the appreciation of light began at the very bottom of the scale of life in Silurian palaeozoic times and exists to-day even in such eyeless ground forms of life as certain protozoans, monads, swarmspores and such unicellular beings as the hydra and in some vegetable forms of life.

In Branch *Protozoa* red eye-like pigment spots are found in both *flagellate* and *ciliate Infusorians*. Specific examples are *Euglena viridis*, *Spumella vivipara* and *Peridinium tabulatum*. Red stigmata or eye-spots are found in *algae* and *swarmspores*. These bodies are like chromatophores in possessing protoplasmic processes filled with pigment. *These organisms are doubtless sensitive to light.*

Perhaps the simplest eye is that of the *Sea Anemone*, Class *Cnidaria*, Branch *Coelenterata*. In the same class of stinging animals some, but not all, of the *Medusae*, as the *Anthomedusae*, *Leptomedusae* and *Cubomedusae*, possess similar eyes. These organs are also found in *Charybdea*, *Stenophora* and *Syphonophora*, different Suborders of the same Class and Branch. The eye is not equally developed in all of these but in a general way may be said to consist of pigment spots with sensory cells beneath clear refractive cells which are simply cuticular thickenings, in some cases forming an easily recognizable lens. To this Branch belong jelly-fishes, some of which have horse-shoe shaped eye-spots without optic nerves.

In Branch *Echinodermata* eye-spots exist in but two of the four Classes, viz., *Asteroides* (star fishes) and *Echinoidea*. Specific examples are *Diadema setosum* and *Synaptidae vittata*. They date from the Jurassic era of Mesozic times. Considerable variation is found in this Branch as in all others. Without attempting to describe individual differences a passing view may be had of the eye of *Diadema setosum* as a type. The black skin of this animal is studded with innumerable bright blue spots. Each spot is subdivided into a great many pentagonal or hexagonal areas, some times numbering many hundreds. Each area is a separate perceptive element which may be resolved into: (*a*), a cornea formed by transparent ciliated body epithelium; (*b*), a refractive body composed of modified body epithelium; (*c*), a layer of pigment cells arranged cup-like beneath the foregoing; (*d*), a nervous layer beneath the pigment layer composed of ganglion cells connected with the center by nerve fibers. *The echinoid eye-spot is thus a compound facet eye.* The same is true of the

eye-spot of the star-fishes where it is red instead of blue and lies at the base of each tentacle or tube foot on each ray (*fig. 1*).

In the next Branch, *Vermes*, in Phylum *Platodes*, Class, *Turbellaria*, eyes are numerous as ocelli or simple eyes. They are frequent in a number of Orders and Tribes, as *Polyclada*, *Rhabdocoela*, *Triclada*, etc. They are very rudimentary, and, although sunken beneath the surface, *are embryologically derived from the ectoderm.*

The carnivorous Annilid worm *Alciope* exhibits some progress in ocular development, and perhaps possesses the best visual organ in this Branch (*fig. 2*). An outer cornea is derived from the body cuticle and an inner cornea from the outer part of the vesicle, the inner part of the vesicle forms the retina, the simple arrangement of which is illustrated in the figure. The retinal cells are merely elongated neuro-epithelium cells with neuclei, pigment and nerve fibers inserted proximally. The lens is spherical.

In *Hirudo* (leech) of the same Class, the eye is a transformed tactile organ, and may not justly be designated an eye. The worm *Polyophthalmas pictus* is composed of many segments, each of which bears a pair of eye-like structures which I would call false eyes, for, curiously enough, although they have lens, pigment cups and a sort of retina, it is extremely doubtful whether they are in even the slightest degree useful for vision. The impaired median eye which occurs in this Branch will be discussed more appropriately to our purpose further on.

In the large Branch *Mollusca*, with its many and varied forms, are found visual organs of a great range of complexity. Some forms are eyeless, and some have primitive eyes. From these there is an ascending scale to the most perfect eye found among Invertebrates.

In Class *Acephala*, Order *Asiphonia* (clams, mussels, oysters) the pair of cephalic eyes, which was probably the rule in the primitive inception of the Branch, have disappeared.

Their inheritance is proved by their presence during the embryonic stage of development.

In this Class the Lamellibranch Pecten has developed a rudimentary eye which occurs in numbers along the edge of the mantle (*fig. 3*). Macroscopically it is merely a dark shining spot. It possesses cornea, lens and retina, *and departs from the rule for invertebrate eyes of the optic nerve being inserted proximally.* As may be seen in the illustration, the optic nerve bifurcates. One branch turns round the edge of the retina and supplies the ganglion cells. The other spreads out disk-shaped over the proximal surface of the eye, its fibers turning around the peripheral edge of the retina to be inserted into the retinal cells. Thus all the *nerve fibers are inserted* into the retina *from the distal side* as in vertebrate eyes.

An interesting curiosity is the ocellus of *Chiton*, Class *Amphineura.* These ocelli stud the dorsum of its shell. They are probably modified tactile organs and these are perhaps modified spines with their papillae. The cells are changed to form a crude cornea, lens and retina. This headless mollusc is thus still able to see.

Another anomaly among *Mollusca* is the occurrence of a rudimentary compound facet eye in *Arca* and *Pectunculus* of the same Class (*Lamellibranchia*) with *Pecten.* Here I will only say that they exist in great numbers on the edge of the mouth and do not agree in any way with the other ocular forms common to *Mollusca* but resemble rather the type eye of *Arthropoda.**

* "In form they resemble an extremely convex shell. The unilaminar epithelial wall of the shell passes, at its edge, into the surrounding pallial epithelium. In section, its component elements appear to be arranged like a fan ('fächerauge').

These elements are of three kinds: (1) conical visual cells, with their bases turned outwards; (2), a sheath of six cylindrical pigment shells surrounding each visual cell. Each group, consisting of one visual cell and its surrounding pigment cells, may be considered as a single eye or ommatidium of the simplest structure; in which the retinula is represented by one single visual cell; (3) slender, almost thread-like interstitial cells which stand between the ommatidia."

The *optic pit* (*fig. 4*) is a depression of the surface epithelium and is the *simplest form of the visual organ.* Being a primitive eye it should be found only in such animals as have through the long ages remained primitive. This is the case. Among the many Orders of *mollusca* they are found only in a few *Families* as the *Gastropod Halliotidae* and *Patellidae* which have remained primitive. The *Cephalopod Pearly Nautilus* is one of the most primitive forms, and on examination its eyes prove to be optic pits.

The optic pit varies in depth and orifice, being either shallow or deep. It is a depression of the surface epithelium which, becoming sensitized, lines the cup and constitutes the retina. The structure of the retina is comparatively simple, containing in distinct layers, rods, pigment, visual cells and ganglion cells. The nerve fibers are inserted from the proximal side.

The next advance in development is found in the *vesicular eye* (*fig.5*) of *Pulmonate Molluscs*, such as slugs and snails. These eyes occur in pairs, one on either side of the head, and in some species are supported upon tentacles which are usually movable and may be retractile. In the embryo the eye passes through the pit stage, then the edges fuse and the cavity fills with gelatinous substance, establishing the adult type of the vesicular eye. A nervous ganglion is found on the nerve, just behind the retina. The eyes of many *Gastropod Molluscs* are of this kind.

There are a number of transitional forms of visual organs in *Mollusca.* A highly organized eye exists in *Dibranchiate Cephalopods* (cuttle-fish, squids, etc.) (*fig. 6*). It presents very marked improvement upon the foregoing. Peculiarities are the crude, equatorially divided, almost spherical lens, a cartilaginous capsule, and a corneal orifice, admitting water to the anterior chamber. The nerve supports a large optic ganglion just behind the retina, and the nerve fibrils are inserted directly into the proximal surface of the retina in the manner common among Invertebata. There is an imper-

fect iris formed by the infolding of the walls of the vesicle with a central aperture, a pupil.

Ontogenetically these eyes pass through optic pit and optic vesicle stages in the embryo, thus bringing their development into accordance with the phylogenetic descent.*

In the Branch *Arthropoda*, with its many hundred thousand species, a curious variety exists in the visual apparatus, and especially in the mode of development in which respect it corresponds with the metamorphoses of general development as witness nauplius, zoëa, larva and pupa. The *Crustacean Arthropod Euphausiidae* passes through seven stages of developmental life. In this Branch the requirements of aerial life are first met.

The eyes are simple or compound, stalked or sessil. The simple eye or ocellus is apparently a direct inheritance from *Vermes*. In the earlier Orders of the Branch, as in nearly all orders of *Entomostraca*, there are both paired and unpaired eyes. *The simple or unpaired eye is median, frontal and rests above the brain.* As it is phylogenetically older than the paired lateral eyes so is it ontogenetically earlier in appearance. The *nauplius* of the many Orders of *Entomostraca possesses only the median eye*, the paired compound eyes developing only as the adult form is reached. In the higher

* The formation of the lens is peculiar. The outer wall of the optic vesicle thickens to form the inner half of the lens. The superficial body epithelium lying over the vesicle thickens to form the outer half of the lens. Around the periphery of the lens the superficial body epithelium becomes thrown up into a fold which rolls in as it grows over the lens to form the iris. Still more peripherally and from the same superficial body epithelium another outfolding occurs which grows inward over the iris to form the cornea and inclose the anterior chamber. "The retina consists of two kinds of cells: (1), *pigmented visual or rod cells*, and (2), *limiting cells.*

Since the nuclei of the visual cells form, with relation to the center of the vesicle, an outer, and the nuclei of the limiting cells an inner layer, and since between these two layers, a limiting membrane traverses the interstices between the retinal cells, the retina appears to be laminated, whereas it in reality consists of one layer of cells. The rods of the retinal cells lie on the inner side of the limiting membrane and are thus turned to the source of light and at the same time to the cavity of the vesicle".

Crustaceans the *Malacostraceans*, when the lateral eyes develop the median eye atrophies.

A consideration of the *Podophthalmatae*, or stalked-eyed forms, and the *Edriophthalmatae*, or sessil-eyed forms, will not be given here for want of space.

The *median eye* is very *similar* to the *ocellus* of *Vermes*. It consists of a pigment cup covered by clear refractive epithelial cells which may be lenticular or, since nerve fibrillae end in them, they may be retinal. Several of these simple elements may be grouped together, as in *Calanella Mediterranea*. A good example of the ocellus is found in the larva of *Dytiscus* (*fig. 7*). In it the chitinous covering is thickened into a lens.

The dominant principle in this Branch is the multiplication of parts, and this principle, which is so evident in the general anatomy, receives the most striking exemplification by the analysis of the *compound eye*. This organ is complex beyond parallel. The number of *single elements* grouped together vary *from 12 in Hexapod Lepisma saccharina* (spring-tail) to *27,000 in Hexapod Sphinx convolvuli* (Hawk moth). The facet or lens of each measures about $\frac{1}{2000}$ of an inch (.0125 mm.), about the size of a human white blood corpuscle.

In *Hyperidae* of *Amphipoda* the simple elements, or *ommatidiae*, are massed in great numbers and in *Phronimidae* of the same order this is subdivided to form two pairs of compound eyes, one frontal and one on the cheeks.

Disregarding the numerous variations and transitional forms which occur throughout the Branch and which are often great, one element or ommatidium (*fig. 8*) will be described which may then stand for the type. The economic scheme is hit upon of making the cornea also the lens. Each ommatidium has an individual lens forming a facet, derived from the chitinous cuticle. Beneath this lie the crystalline cone and crystal cells surrounded by pigment cells. The pigment may be white, yellow, red, green, black, or purple. Against the apex abut the retinular cells which embrace the rhabdome.

Each retinular cell receives a nerve fibril at its proximal end connecting it with the center.

The relation between the compound eye and the ocellus is of much interest. They are both probably derived from a primitive single eye best represented to-day by an ommatidium of the cone eye found in *Antennate Tipulidae* (gnats, crane-flies, daddy-longlegs, etc.). *A slight increase in the complexity of this primitive eye is supposed to have produced the ocellus and a grouping together of these primitive eyes is supposed to have produced the compound eye.*

I have not space to discuss the physiology of the various eyes, in this paper, but wish to say in passing that the compound eye obtains a single erect image and the ocellus an inverted image. All the imperfect eyes thus far considered have correspondingly imperfect vision. Ocelli are very myopic, to enable their possessors to see in the holes, nests and dark places where they lurk.

In the next Branch, the *Vertebrata*, the eye is developed from specialized neuro-epithelium *from the ectoderm*, the same as in the Invertebrata, but as a result of an infolding of the ectoderm into a dorsal neural axis it grows outward from the latter towards the surface instead of being an insinking from the surface. The introductory orders of the branch, *Tunicata*, *Acrania*, *Cyclostomata*, *Elasmobranchii* and *Ganoidii*, inherit from the lower Branches eyes more easily traced than the higher Orders, and in the higher Orders, in the embryo, in a fleeting abbreviated way, identically the same habits of growth are seen that characterize the lower Orders.

The *primitive Vertebrate* possessed a median, unpaired eye and a pair of lateral eyes as shown by the fossil fish *pterapsis* from *Silurian Palaeozoic times* and which exhibits the first dawning of a vertebral column.

In the ground form of *Vertebrates* of modern times, the *Tunicates*, is found a *single median unpaired eye only*. In *Amphioxus*, Class *Acrania*, there is a single median, unpaired eye-spot comparable only to that of Vermes.

The eye of the *Cyclostomata* is similar in many respects to

the invertebrate type. Here there appears the first suggestion of a vitreous. Neither cornea, iris, nor lens are present in a typical manner. In the *Cyclostome Ammocoetes*, the spherical lens *almost* entirely *fills* the cavity of *the eye* leaving very little space for the vitreous, a condition which *is seen in a fleeting way in* the ontogenetic development of *the mammalian eye.* There is no sclera and the rudimentary muscles which contribute a limited motility to the eye are inserted into the connective tissue at the periphery of the choroidea. In the ontogenetic development of this eye there is seen the growth of the eye in the way that is typical for the entire Branch of Vertebrata in all its Classes. The *ectoderm* is *folded inwards* to form the *medullary axis.* The *cephalic end* of this *expands* to form the brain and from the *sides of this* cephalic *expansion*, even before the dorsal medullary groove is entirely closed in, *there bulge outwards the lateral evaginations which rapidly become the stalked vesicles for the eyes.* The vesicle comes to lie just beneath the surface epithelium which thickens and becomes transparent over it to form the lens just as in the *Anthropoda* and *Mollusca.*

To explain in detail the complicated changes, processes of cellular proliferation and of intricate infolding and outfolding by which the complicated organ is produced is forbidden by the narrow limits of my space.

A type of the fish eye is shown in *fig. 9.* In a general way the eye is hemispherical with the flat surface superficial. The cornea is thin, flat and the anterior chamber is very shallow. There are no lids and no lacrimal apparatus. The more important peculiarities are the cartilaginous shell in the sclera, the extraordinarily long rods, which form one-third to one-half the thickness of the retina, and the vascular falciform process which extends from the fundus to the interior of the lens as a permanent structure in the adult. This is present to a degree in the embryo of all the higher Classes and Orders of the Branch, including the human eye. It is an adult structure in many of the lower Classes but is finally suppressed in the fully formed state in the higher Classes. The cartilagi-

nous plate persists through fishes, reptiles and birds and in some of the lower orders of of mammals. The frequent occurrence of chondromata and osteomata in human pathology in the ocular tunics simply evinces the force of inheritance of the habit of growth transmitted from a long line of ancestors.

Among fishes in Elasmobranchs and Ganoids the sclera is purely cartilaginous and quite thick. In Elasmobranchs and Teleosts there is a bright, glittering, greenish, golden argentea, which rests upon the choroid and extends to the iris. Here also occurs the *bright tapetum*, which is transmitted through the Branch in various Orders. Familiar examples are the yellow tapetum of the ox, the reddish-yellow one of the cat and the blue one of the horse, which *renders the eyes of these animals luminous* when their pupils are widely dilated in the dark. The choroid in fishes presents larger arteries and veins externally and capillaries (chorio-capillaris) internally. The same arrangement persists throughout all the higher Classes. In accordance with the laws for the refraction of light the difference in the refrangibility of the different media in aquatic animals is much less than in land animals.

Throughout the entire 9,000 species of fishes the eye grows progressively larger the deeper and darker the habitat of the individual species, until a depth of 2,000 to 2,500 fathoms is reached, when blind forms are encountered. The blind species of the great depths of the sea are comparable to the eyeless finny inhabitants of subterranean waters, as of Mammoth Cave. These fishes develop an eye in the embryo, and lose it in the fully formed state, thus showing their descent from seeing species in neighboring streams.

In class *Reptilia* there is but little improvement in the eye in *Amphibia*, while in the land forms the eye becomes adapted to aerial vision by developing a cornea with a highly arched curvature. In *Ophidia* (serpents) there is a *rudimentary lacrimal apparatus*, but no lids, the eye being always open. In other Orders there are developed three lids, one transverse and two vertical. *Chamelion vulgaris* (old-world

chamelion), Order *Lacertiles*, in this Class, has a movable eyelid with a hole in its center, through which it sees when the eyelid is shut.

In this Class the eyeball is generally round, slightly movable, and is the smallest proportionately to the skull in the entire Branch. The pupil varies with the Order and Genus, being either a vertical slit or three-cornered. The sclera contains cartilaginous plates. The pectinate ligament is dense and fibrous. In some Orders the retina contains cones only and no rods. The fundus presents the projection called the *pectin*, which is *smooth*. The choroid *lacks* the tapetum, argentea, choroidal gland, falciform process and campanula of fishes.

It is in this Class, *Reptilia*, that is found the best living examples of an *unpaired median eye* in Branch *Vertebrata*. The pineal evagination from the roof of the interbrain exists in all Classes, from *Cyclostomata* upwards, but is best seen in *Sphenodon punctatum* (tuatera), genus *Rhinchosaurus*, a large, beaked, carnivorous, New Zealand lizard, which is the only living representative of the fossil Order *Cryptodontia*, which dates from the earliest strata (triassic) of the Mesozoic age. In *Lacertilia* it exists fairly well developed in a number of reptiles, but in tuatera, especially, it is easily recognized as an eye. It comes to the surface in the median line, is pine-cone shaped, with the outer wall of the vesicle forming a lens and the inner wall forming a retina with visual rods. The nerve fibers are inserted into the proximal ends of the cells on the invertebrate plan and the pineal stalk, or optic nerve, passes through the parietal foramen. The pineal eye appears in *Vertebrates* as an inheritance from *Invertebrates*.

With the infolding of the ectoderm in *Vertebrates* to form a central neural axis there arises the necessity of evaginations of this neuro-epithelium to produce the various sense organs. So in the introductory forms of the Branch there appears the pineal stalk, which in *Elasmobranchs* (sharks) is hollow with a vesicular extremity. It projects through the cranial capsule by the parietal foramen in the median line. In *Reptilia* it very frequently lies outside the roof of the

cranium beneath a transparent area of integument. In several Genera the transparent cuticle is modified to form a lens while the opposite deep wall of the vesicle becomes stratified and pigmented to form a retina. The stalk now solid represents the optic nerve.

In birds and mammals the parietal evagination is universal and is to be regarded as a vestigeal remnant, a relic of other days long gone and as a secret key to nature's ways.

Its early appearance in the sixth week of embryonic growth in man is an evidence of its ancient ancestry. The force of this argument will be better realized when I remind you that such distinguishing characteristics of the human brain as the parieto-occipital fissure, the fissure of Rolando and the collateral fissure develop respectively in the fourth, fifth and sixth months of foetal life.

In Class *Aves the eye is larger* proportionately to the skull than anywhere else in the kingdom and *the keenness of vision is great.* In the embryo the eye develops rapidly and by the ninth day in some species is as large as the combined bulk of all the other organs of the head. In this respect it differs from the mammalian eye which is never disproportionately large and in growth is outstripped by the cerebral hemispheres.

A general characteristic of birds is the possession of a nictitating membrane which can be flashed across the eye obliquely with lightning quickness while the eye is open. There is in the sclera a ring of hyaline cartilage, a heritage from the preceding class.

In night-flying birds the type eye is bell-shaped (*fig. 10*) and in all birds the cornea has a curvature of very short radius and a deep anterior chamber with the retina far removed from the lens. Thus a sharp definition of images is secured. In water-fowl, however, the eye is shorter. The pupil, usually round, in owls is a vertical slit. The ligmentum pectinatum is of looser texture than in the preceding class, and in the succeeding Class, *Mammals*, becomes still looser and constitutes the familiar Fontana's space. *The accommodation*

is more powerful in birds than in other animals because it must act for distant vision, the resting state being adapted for near vision. The rods here as in Mammals equal about one-fourth only of the thickness of the retina. There is no argentea nor choroidal gland. The pectin is *corrugated or frilled.*

The Mammalian eye in general is very similar to the familiar human eye, the main variation being in the size of the ball and the shape of the pupil. In *Monotremes* (duck bill), the introductory Order of the Class, the sclera is cartilaginous, as is becoming to a bird mammal. The ball is occasionally elongated but as a rule it is round, with the cornea with an arc of curvature of short radius and the retina comparatively remote from the lens, thus giving large images and sharp definition.

In aquatic *Mammals*, however, as in *Cetaceans*, the cornea is nearly flat and the lens nearly spherical, as in fishes. In *Ungulates*, as well as *Cetaceans*, the cornea is oval. The structure of the retina is finer in Mammals than in any other Class. In Mammals only do retinal blood-vessels occur. The nerve fibrillae are inserted *distally* into the retinal cells, the percipient elements being turned away from the light in all mammals. That is to say, the nerve penetrates the globe and is distributed over the inner surface of the retina so that light must pass through the fibers to reach the cells. The retinal rods become progressively smaller, ascending through *Vertebrata. In Amphibia they average 30,000 per sq. mm., in Birds 140,000 per sq. mm., and in mammals 250,000 per sq. mm.* This fact with the one given above anent the dioptrics explains the improved vision.

The anatomy of night prowlers, especially *Felidae*, affords, as explanation of their night vision, only somewhat longer outer processes of the retinal cells and a pupil capable of dilating to a remarkably large size. Some, as the bat, have no rhodopsin, although most of them do.

Schlemm's canal exists throughout the class. The pupil is frequently round as in man, lion and tiger, while in some members of the class it is a horizontal oval, as in the horse,

while in others it is a vertical slit or oval, as in cats. Subterranean Mammals have very small eyeballs, therein departing from the rule in the class. In moles the eyes are useless, buried beneath the fur and covered by a membrane.

The eyes of all animals have distinct fields of vision except man, apes and some nocturnal predatory birds. Experiments with the most intelligent anthropoid ape, the chimpanzee, demonstrate *color blindness.*

Single vision with the two eyes and the absence of color vision in lower orders brings me to speak of two important things. In the human embryo, as in all others, the eyes develop laterally, but in the fifth week they begin to rotate anteriorly and during the third month they approximately assume their normal adult relation to each other, so that their visual axes become coincident and their fixation synonymous. This function, then, being a very late acquirement in the race phylogentically and also in the individual ontogenetically, it will be seen how very unstable it must necessarily be and how very prone to disturbance it is likely to be. *This explains the very frequent occurrence of strabismus and heterophoria.* It is believed, on good ground, that mammals below man and all the lower Classes and Branches do not possess an appreciation of the simple or combined prismatic colors in more than a rudimentary way. Their retinas are not sufficiently finely organized to enable them to more than distinguish the colors which their habits of life require.

The perfected color sense, as enjoyed by man to-day, is probably not only a late acquisition restricted to the more recent Orders of Mammals but has doubtless been largely evolved in Man within the historic epoch. The very frequent occurrence of congenital color blindness in men and its great rarity in women, who cultivate the color sense more, substantiates this view. I consider *congenital color blindness, therefore, as an evolutionary vestige.*

Embryologically, the retina is a portion of the brain wall precociously projected outward from the interbrain vesicle to the periphery, invaginated somewhat to the shape of a Tan-

talus cup, and then undergoing a very complicated series of histological changes. The stalk of the cup becomes the nerve by the growing through it of the nerve fibers which connect the ganglion cells of the retina and basal centers. This is true not only of Man but of Mammals in general.

The hyaloid artery, which is seen during embryonic life in Man, is the remnant of the falciform process which exists in the fully formed state in many of the lower Orders and Classes of Vertebrates and in the embryo in all.

410 Altman Bldg.

MEDICAL EXAMINATIONS IN OUR PUBLIC SCHOOLS.

By E. A. Donelan, M. D., St. Joseph.

My experience and observation in the practice of medicine in this city for twenty-five or thirty years, during which time I treated many school children, has convinced me beyond a doubt that many lives would be saved by proper medical examinations.

The great number of contagious as well as non-contagious diseases cannot be detected or diagnosed by superintendent or teachers, consequently the importance of an experienced examiner to examine all who are unwell and take proper steps to protect the child affected as well as the other pupils. If it is a contagious disease the child should be sent home with instructions to parents to call on their family physician for the attention the child may require.

While investigating the subject of medical examiners for schools I find Boston was the first city to establish the system, in 1894, during the prevalence of a severe epidemic of scarlet fever. The good results were so manifest that New York, where there was great fatality among school children, adopted the system, then Chicago and many other cities, large and small.

Dr. Green, medical inspector of Boston, in his report says:

"The children are divided into two classes: —

1st. Contagious diseases; 2d, non-contagious diseases, disabling and rendering children mentally and physically below the normal standard. The examinations are conducted so as scarcely to disturb the schools. The medical examiner calls on the principal or teachers and ascertains if any children under their charge are unwell from any causes. If

any, report the names to the medical examiner, who has them come to the teacher's room, where they are examined, and a note or memorandum is made of the result of the examination, and this is kept for future reference. The teacher is then advised as to whether the child shall be sent home for treatment by family physician or remain in school. While we have rules governing the return of children to school who have had contagious diseases, it is impossible at times to enforce them in the interest of the health of the schools. Parents and children are eager to have the children return to school, and the attending physician sometimes is persuaded to give the child a certificate to return in a shorter time than required by the rules of the school, and not being thoroughly disinfected the disease is spread in the schools. A child may have a fever and sore throat, a mild case of diphtheria, not having a physician, and return to school — in whose throat the bacilli of diphtheria can be discovered, while others return while in the desquamating stage of scarlet fevers. The examining physician should have a diphtheria culture outfit and take cultures of every acute case of pharyngitis and tonsillitis in the schools, as many cases of diphtheria can be discovered in no other way. We also have children who have been exposed to smallpox and in a few days, or a week, are sent to school, parents not aware of the fact that the incubation stage is from 14 to 16 days after exposure before the disease manifests itself."

Also pulmonary consumption, that is claiming more victims, I believe, than any other disease, is found in nearly all our schools in the incipient stage, and teachers in the advance stage are sometimes permitted to teach while they are able. It is a well-established fact that the germs or bacilli from the sputa inhaled day after day, especially in susceptible constitutions, will establish the disease. It may be slow in developing but the seed is sown and the child will soonor or later become its victim. In justice to the child it should be taken out of school and receive the necessary treatment to build up

the system and resist the disease. Many bright, ambitious children with delicate constitutions are overtaxed with studies, their system gradually breaks down under close application, resulting in nervous prostration and other conditions that require rest and medical attention. The medical examiner in no case makes suggestions as to treatment when a child is sent home, but directed to call on their family physician for treatment. I have found chronic enlarged tonsils, polypus in the nose, causing the child to breathe through its mouth, impairing the progress of the child in school.

Myopia, or near-sightedness, is rapidly increasing through the grammar grades to high school. There are a great many young people compelled to wear glasses. This was not the case twenty-five or thirty years ago, and the causes and conditions leading to its rapid increase should be ascertained, and the necessary steps taken to arrest its rapid increase. Myopia, from the best information I have, is not hereditary. Dr. Ault, who had an opportunity to make extensive observations, says it can't be looked upon as hereditary.

Cohen found in one hundred and four myopees that only two and seven-tenths per cent had near-sighted father or mother, and observations of our oculists favor the above views. There are many conditions that favor the impairment of the eyesight. I may mention schoolrooms not properly lighted, too much or not enough light; children compelled to face a strong light; blackboards placed between windows and children and teachers compelled to face the light. It is preferable to have the light to the left or back of the pupils; high windows illuminating the ceiling reflect the light through the rooms.

Another factor that gives rise to many cases of near-sightedness is studying at home under unfavorable circumstances, particularly bad light. Delicate children, in my opinion, should rest while at home and get a good night's sleep. A few of our schoolrooms are yet heated by stoves. It is im-

possible to regulate them. The heat rises, while the floor is cold, producing cold feet and warm heads; this gives rise to headaches that usually affect the eyes. However, now, with the late improvements, hot air and steam, with fans, the heat can be equalized throughout the room if the janitor understands his business.

The mode of sweeping and disinfecting and manner in which it is done, is of great importance as regards the health of children.

Among the different disinfectants now in use I believe formaldehyde is the best germ destroyer when properly used; but like all other aids to health it should be intelligently performed. The best mode of sweeping rooms should be ascertained and practiced in all our schools. The usual mode is scrubbing and dry sweeping.

Dr. Bennett, the bacteriologist, has made experiments to ascertain the number of bacteria found in the air after each mode of sweeping, dry sweeping, sweeping with sawdust, dry and damp. The floor brush moistened by cotton waste saturated with kerosene oil. Also a patent floor brush containing a reservoir filled with kerosene oil. This brush is saturated by the oil in the reservoir during the process of sweeping and prevents the dust from rising in the room.

Dr. Bennett found the use of kerosene to be decidedly the best, the number of bacteria in the air compared with dry sweeping being reduced to one-twentieth the number.

When we consider the great importance in every department of our public schools that pertains to maintaining health and preventing disease that in many instances result in death, the great advantages to be derived from an intelligent medical director is apparent to all. I should state that in many of the cities the medical examiners are appointed and paid by the city under charge of the board of health, school boards rendering all possible assistance.

Viewed from an economic point preventive medicine adds

greatly to the wealth of a nation, placing the low value 1,000 dollars on the life of a human being. A properly conducted medical inspection of all conditions pertaining to the health of our schools would not only save lives but many dollars to our cities. It is true medical examiners have not been appointed in any of the cities of Missouri. I find our school boards are slow to take up anything new. They have a great horror of fads, yet I believe the St. Joseph School Board would have adopted the system some time ago but for the want of funds.

We attribute the present great energy and vital force in the United States to our excellent system of education. It is, I believe, our duty as a benevolent profession to take the lead in this important work in the interest of the children in schools.

THE STATE'S DUTY IN THE MATTER OF PREVENTION OF CONSUMPTION.

By Robert O. Cross, M. D., Kansas City, Mo.

Consumption is a contagious and communicable disease due to a specific germ, the tubercle bacillus. A contagious disease is one in which the disease germ goes from one host to another without passing through an intermediary host or culture medium, in other words a disease in which the pathogenic organism usually does not reproduce itself outside the host upon which it maintains its parasitic existence. The parasite in such a disease is always conveyed from one host to another, either by direct contact or by indirect contact through the fomites of the disease. An infectious disease on the other hand is one in which the parasite reproduces itself in an intermediary culture medium, for example, malaria. Tested by the diseases which are types of infection and contagion consumption is purely a contagious disease, as it has no intermediary host. When the bacillus from a consumptive is thrown off it may and does maintain its viability a long time in the necrosed tissue by which it is surrounded. But its cycle of life is suspended and is only resumed when it comes in contact with a new and congenial soil. The necrosed tissue by which the germ is surrounded plays a very important part in its transmission from one host to another; it dries up and becomes dust, in which the bacillus are directly carried to new soil, there to recommence their suspended cycle. What other factors may enter into the causation of consumption, such as overwork, grief, poverty, exposure, etc. (heredity plays no part directly in the causation of consump-

tion), the fact remains that there is but one essential factor and that is the germ. A disease is contagious or not contagious, it can't be one or both. If it is due to an organic life or germ, it must be contagious or infectious, admitting that the germ is the time not denying that there is in this as in all other diseases predisposing factors or causes we are forced to admit that without contact with this essential cause, we can have no new case of the disease what is not self-evident. It is this, that if we could surround and isolate every case of consumption, so that none of the germs given off from these cases could come in contact with a new soil, we would stamp the disease from the face of the earth. As this is an impossibility, how may we nearest approach the desired end? First by the registration and reporting of every known case of consumption, as soon as diagnosed. To accomplish this the State must pass a law such as the State Board of Health of New York has suggested in which I have made a few changes, as follows:—

1. Local health officers will hereafter register the name, address, sex and age of every person suffering from tuberculosis within their respective jurisdictions, so far as such information can be obtained. This department requires that hereafter all physicians will forward such information to the health officials in the respective jurisdictions in which such cases may occur. The information will be solely for the use of health officers, and in no case will visits be made to such persons by public officials, nor will any public sanitary surveillance of such patients be assumed, unless the patient resides in a tenement house, boarding house or hotel, or unless the attending physician requests that an inspection be made of the premises, and in no case where the person resides in a tenement house, boarding-house or hotel, if the physician request that no visits be made by inspectors, and is willing himself to deliver circular of information or furnish such equivalent information as is required to prevent the extension of the disease to others.

2. When a local health officer obtains knowledge of the existence of cases of pulmonary tuberculosis residing in tenement-houses, boarding-houses or hotels, unless the case has been reported by a physician, and the latter requests that no visit be made, inspectors will visit the premises and family, will leave circular of information and instruct the person suffering from consumption and the family concerning the measures which should be taken to guard against the spread of the disease; and if it is considered necessary, will make such recommendations for the cleaning or renovation of the apartment as may be required to render it free from contagion.

3. In all cases where it comes to the knowledge of a local health officer that premises which have been occupied by consumptives have been vacated by death or removal, an inspector will visit the premises and direct the removal of infected articles, such as carpets, rugs, bedding, etc., for disinfection, and will make such written recommendations to his immediate superior, concerning the cleaning and renovation of the department, as may be required. An order embodying these recommendations will then be issued to the owner of the premises and compliance with this order will be enforced for sanitary reasons. No other persons than those there residing at the time will be allowed to occupy such apartments until the order of the health officer has been complied with.

4. The authorities of all public institutions under the jurisdiction of the State Department of Health, such as hospitals, dispensaries, asylums, prisons, homes, etc., shall be required to be furnished to the Department of Health of the State of Missouri the names and last addresses of every consumptive coming under observation, within seven days of such time, and all cases that remain in above institutions must keep in wards or rooms by themselves, and those uncured leaving the institutions must give home address, and State Board of Health should be notified of the same.

The State should be sponsor and distributer for literature teaching the public the following: The public must be taught that consumption is contagious as compared to other diseases which are rapidly so, but it is slow but none the less sure, and comparing smallpox and consumption we can say, where it takes but moments to contract the one, it takes weeks, months and even years to acquire the other, and while it takes but days for smallpox to run its course, it takes months and years for consumption; and comparing their duration one is nearly as intensely contagious as the other. They must be impressed with the fact that the danger lies in the necrosed tissue that is spat from the lungs of their fellow, and that the tissue is divided and subdivided until it becomes dust, many particles of this dust containing germs and until this is devitalized there is danger. Also they must be taught that fifty per cent of all new cases of consumption are caused by family relationship implantations, twenty-five per cent to house contamination, fifteen per cent to clothing and utensil contamination, and only ten per cent to other causes such as occasional contact, breathing sputum dust of the street public conveyances, etc. We must also advise them how to avoid these different sources of infection. To do this all consumptives must know the name and nature of the disease. A number of people, both lay and professional, will say that it is unnecessary and even cruel to pronounce one suffering from an incurable disease. It has been my experience that by far the best course to pursue is to inform the patient of the nature of his disease. It may at first be a shock and a source of mental suffering and anxiety, but the ultimate effect will be for the patient's best good. The patient will observe the rules laid down for his own recovery, and the precautions necessary to prevent reinfection of himself and the infection of others. Knowing his disease you can induce him to adopt the radical changes in his mode of living which will tend to his own recovery. But granting that it does cause the patient some

mental anxiety and suffering, can it be maintained that this is better than bringing suffering, disease and death to many others, and the reinfection of himself without a chance of his recovery? All the possible harm it can do the individual, if he is in the incurable stage, is to render the few remaining months of his life a little less comfortable. After making it plain to the public that the germ is the cause of the disease, and that this germ does not stop on the way to rear its family, but in the language of the day it lays dead until wafted by some favorable circumstance to its new home, there it raises its family and sends them forth to populate the earth with one sure cause of the great white plague. We must inform them of the ways by which they may avoid this parasite (family relationship). 1st. By the absolute destruction or devitalization of all matter given off from the lungs of the sick one. This can be best accomplished by antiseptics and fire. 2d. A high degree of personal cleanliness of the patient himself. 3d. A sleeping room occupied only by the patient into which sunshine and air can enter freely.

House contamination is easily controlled, and must be carried out by a conscientious physician or a responsible health officer. Absolute cleanliness is the only safeguard, and houses in which consumptives have lived must be disinfected until the germs are all destroyed. This cause of contagion can by proper disinfection be entirely eliminated in the next few years; food, clothing and utensil contamination must be trusted to our patient guided by his physician. The contagion from sputum dust contact, etc., can be nearly if not quite done away with by having rules in all places where consumptives are employed, requiring them to properly care for and destroy their sputa. Ordinances have been passed in many cities of this State forbidding spitting in public places, which in my opinion cannot be and are not enforced, for very few Americans can be made to swallow their own sputum. The harm from tubercular sputa in public places

comes from depositing it in dark and out-of-the-way places where it is not devitalized, and becomes germ-spreading dust. The State, in the larger cities where the harm is done, should compel these municipalities to provide spittoons on their streets, flushed with running water, where the spitters can be compelled to deposit their escreta as they are compelled to deposit other body excretions. Is there any valid reason why the State cannot pass this law compelling the reporting and registration of all consumptive cases, at the same time giving to all of these cases information which will prevent infection of others and infection of themselves? I say there is none and in my opinion if this is properly done the number of cases of pulmonary tuberculosis in the State of Missouri will decrease one-half in the next ten years.

Some of the gentlemen will maintain that this law cannot be enforced, for the reasons that all cases will not be reported, and that the laity cannot be educated to fear the contagion of consumption. Granting that these reasons will have a bearing, can this great State be excused from passing and enforcing a law which will decrease by one-half the ravages of a plague, which causes one-tenth of our deaths, and one-fourth the suffering? Would it not be a great accomplishment and something for our lawmakers and physicians to be proud of if at the end of ten years they could say we have reduced the death rate five per cent. This is going to be done in other States, and soon. Why not in Missouri? The ideal law which should be passed in our State is one which would require the isolation in properly conducted hospitals and sanitariums of every known case of consumption, and it will not be necessary to place above the door the legend, "All ye who enter here leave hope behind." But as this would be an impossible law to enact at present, what may we substitute? It would be a law to appropriate moneys to build and maintain hospitals and sanitariums for our consumptive poor. In

my opinion if there is anything that this State needs to place it on a par or in advance of all others it is these sanitariums and hospitals.

Why? First, for the amelioration of suffering, which it will bring its inhabitants. It can be approximately proven that from twenty-five to thirty-three per cent of the suffering amongst the poor and semi-poor of this State can be traced directly or indirectly to pulmonary tuberculosis. Can anyone venture to say how much hardship is undergone? How many sacrifices are made daily for the benefit of near and dear ones by our poor people?

Second. To prevent the spread of the disease itself, for a very, very large per cent of all new cases, especially in our large cities, can be directly traced to tenement houses and other abodes of our indigent classes.

Third. For the benefit of the consumptives themselves. Can anyone deny that one suffering from consumption would not be immeasurably better off in a properly conducted tubercular hospital or sanitarium where they have more than an even chance of getting well? Much better than they have in their own homes, where they are daily reinfecting themselves, and endangering the lives of all of their companions, and also the general public, and we now are at the great reason for the isolation of consumptives in proper hospitals and sanitariums. There should not be a chance for the contamination of a single individual outside of these hospitals, and it is a rare thing that a new case develops in these hospitals, proving that the contagion is and can be controlled absolutely by the proper devitalization of the excreta of this disease. Is there a single reason, moral or financial, why these laws should not be passed, levying taxes and appropriating moneys for the building and maintenance of these institutions? If there is none against it, there must be many for it. Taking it for granted that this society agrees with me, that it is the duty of the State to pass laws requiring the regis-

tration and reporting of consumptive cases, and to build hospitals and sanitariums for the care of our poor and semi-poor inhabitants, then we have remaining the duty of the medical profession, which is to see that our legislators know their duty and do it, which will in itself be a glorious achievement.

No. 322 Rialto Bldg.

DISCUSSION.

DR. C. A. MITCHELL, Blythedale: I was very much interested in Dr. Donelan's paper. We need something of this kind to throw a protection about strong healthy children. It is essential that we should look after them carefully and the question of contagion is very important. One thing not mentioned is the nervous troubles that follow improper light, or the refractive rays thrown on the blackboards in schools. I am strictly in favor of the abolition of the blackboard in schools for the reason that we have a bad effect from the white chalk on the board and the dust from the chalk also causes trouble in the air passages. As the essayist has said, the light should come from above and behind. Some years ago when I was a member of a State Board of Education I visited a number of schools in different cities and I saw how important this matter was. We find many cases of affected vision from improper light and also nervous troubles and overwork, though I don't think there are many injured from overwork. Rest is only a change of environment and overwork in any line is very rare.

I was very much pleased with Dr. Cross's paper. I think the plan of isolating these cases is a very good one.

DR. J. D. GRIFFITH, Kansas City: In New York last year there were 52 arrests for expectorating in public places with 29 convictions and fines. In Michigan and one or two other States there are laws already in force governing this practice. We have never taken any steps in this direction but this Society ought to be able to have laws passed regulating this practice.

PUBLIC SANATORIA FOR TUBERCULOUS PERSONS.

By George Homan, M. D., St. Louis.

The provision at public expense of institutions designed for the exclusive reception and treatment of persons suffering with pulmonary tuberculosis in its earlier stages, appears to have been of quite recent origin, and the distinction of leadership in this respect belongs to Massachusetts, that commonwealth having taken the initial step in 1895 by legislation providing funds for the acquisition of a site, and the erection and equipment of suitable buildings thereon for the institution now known as the Massachusetts State Sanatorium at Rutland, a board of trustees being appointed for the purpose of executing the provisions of the law.

This decision was reached as a result of the very favorable experience of private institutions in that State and elsewhere maintained for the purpose of treating tuberculous persons by the out-of-door or open-air method, as it is conveniently termed.

These institutions of a private character are more numerous abroad than in this country, Germany being especially well supplied, but so far as known public funds have nowhere been devoted to the accomplishment of this end, except in the United States, individual beneficence and enterprise having until a recent date been the sole means of reliance for affording to this class of deceased persons the advantages presented by such institutions.

The example set by Massachusetts was followed by the State of New York in 1900, a law being then enacted which provided for the establishment of a State hospital for the

treatment of incipient pulmonary tuberculosis and making an appropriation therefor.

In October, 1899, the medical department of the United States Army established a sanatorium for the treatment of cases of pulmonary consumption at Fort Bayard in southern New Mexico, which had been discontinued as a military post. It is located in a dry mountainous region at an altitude of 6,040 feet, the climate permitting comfortable outdoor life during the entire year.

The matter of restricting tuberculosis and providing sanatoria of this character is now being actively discussed in a number of States as, for example, in Ohio, where an association for the prevention of this disease has been formed with a view to public enlightenment concerning the means by which the infection is spread, and how its extension may be curtailed, and ultimately for the establishment of a State sanatorium for the exclusive use of persons thus diseased.

In Pennsylvania, earnest agitation of this question has been going on for some time, and also in some of the other Eastern and Northern States.

Where a general recognition by the people of a State of the necessity for establishing such an institution leads to the enactment of requisite legislation therefor, a principal question first presented for consideration is that of proper location. The popular instinct as well as professional opinion has always favored an elevated site subject, of course, to certain considerations that must have weight in the final decision of the question, such as convenient accessibility, water supply, shelter from unfavorable winds, exposure to the sun, nature of soil, etc.

The conditions governing the selection of a site for the Massachusetts institution, which is generally looked upon as a model of its kind, were that the place "should have an altitude of at least one thousand feet above the sea; should be situated on a southerly slope and protected by woodlands on the north; that it should have a dry soil; be capable of

good drainage; be so situated that not less than two hundred acres of land could be secured, and should have an unlimited supply of pure water. * * * A further requirement was that the location should possess reasonably convenient means of communication by railroad, and should be located no further from the center of population than the other conditions of the case required."

In Public Health Reports for December 20th, 1901, the conditions laid down for the location of such an institution are that it should be in a "place sheltered from unfavorable winds, in a healthy locality, in the neighborhood of pure water, where the air is free from dust and poisonous emanations, in an isolated spot at a distance from any large population, if possible, on the southern slope of a wooded hill or mountain, where the summit of the hill and the neighboring trees protect it from strong winds."

The requirements held necessary in England for such a Sanatorium are that it must be "erected on an elevated and sloping site, with a sunny exposure and well sheltered from cold winds. It will have a farm and be surrounded by extensive grounds, well wooded and affording ample space for exercise of various kinds, the soil will be dry and permanent and the water supply abundant."

The altitude above sea level of the site chosen for the Massachusetts sanatorium is 1,160 feet, with an additional height of one hundred feet afforded by a hill directly north of the building, while the site selected for the State sanatorium in New York is at Raybrook in the Adirondacks, between Lakes Saranac and Placid, the elevation being approximately 1,500 feet.

While it may be shown by further experience that a considerable elevation of site is not an absolute essential to the attainment of success in the practical working of these institutions, still the existing sentiment that a high location affords certain real advantages for the recovery of health in this disease cannot be ignored, the thought which expresses

itself in the saying that on the mountain top is liberty declares itself in the common feeling that in the mountains there is health, and the moral appeal made to the discouraged diseased dweller of the city by the opportunity offered of a change to mountain air is a re-enforcing factor of no inconsiderable importance in the successful outcome of the case. The imagination is also appealed to and a wholesome stimulus imparted akin to that derived from the inspiring prospect of the boundless ocean to which recourse is had by many sufferers from this malady.

But that the air of an upland region offers average conditions most favorable to recovery in consumptive cases is obvious in that its wide movement is less hindered, that it is drier, that it is freer from harmful floating matter, that gaseous impurities are absent, and that the atmospheric pressure is lowered, while if pine forests are near by it is claimed that certain balsamic or healing qualities are thereby added to the air.

In the planning of such an institution the consensus of competent opinion strongly favors the pavilion or detached ward system, and these may be two stories in height if deemed necessary, the ground plan of course being such as to secure to each ward the freest possible access of sunlight. Once in operation an institution thus constructed can be conveniently and economically administered, although the initial cost of construction is greater, but the increased comfort and safety secured to the patients by this plan of building fully offsets the extra cost.

A medical superintendent administers the business affairs of the institution and sees that the directions of the visiting and resident staff of physicians, as to diet, regimen, exercise, employment, and the like, are properly and fully conformed to.

The prevailing medical view as a result of Massachusetts' experience is that only those persons should be admitted as patients in whom the disease has not advanced to a bed-ridden

or apparently hopeless stage, such cases manifestly should be provided for elsewhere, and accordingly a discriminating selection is made among applicants for treatment in order that those received shall not have passed beyond the stages in which positive benefit or cure from sanatorium residence may reasonably be expected.

The number of patients received at the Rutland institution for the year ending September 30, 1901, was 399, the average age being twenty-eight years, the total number treated was 575, a daily average of 168, and but one death occurred.

Of this number only about (5%) five per cent were not improved, while of the strictly incipient cases (95%) ninety-five per cent were to all appearance cured, improved or the disease arrested, the results depending to a considerable extent on the length of stay, some remaining one month and others twelve months or more.

This encouraging showing is being improved year by year, as accumulated experience has taught the best methods of care and treatment, and the reports received from patients treated during preceding years show in general an unlooked-for stability of improvement or permanency of cure even when these persons were compelled to resume their former employments, this being explained by the persistence with which they adhered to the hygienic and other rules of living laid down for them while in the sanatorium.

The rule of strict selection of cases is not observed at the U. S. Army Sanatorium nor presumably at that of the Marine Hospital service, inasmuch as those admitted are drawn from classes numerically restricted; but nevertheless the reports of the results of residence and treatment of persons received in all stages of the disease are quite favorable. They emphasize in particular, however, the comparative unimportance of the hereditary factor, and the great advantage of treatment in such an institution in the primary forms of tuberculosis.

The visiting physicians to the Rutland Sanatorium, Drs.

Bowditch and Clapp, say that it has been a source of gratification and surprise to "see how quickly and contentedly the patients have adopted the special hygienic methods used for treatment, viz., almost constant life in the open air, whether by walking or reclining on the piazzas, and the ingestion of nourishing food. The remarkable change in the aspect of these patients after even a short stay at the hospital would convince the most casual observer of the efficacy of the treatment upon the general condition of the patient." They comment favorably on the moral effect of the discipline of the institution as a marked factor in accomplishing what is otherwise almost impossible to bring about except in rare cases when treating the patient at home, and then remark that this institution is "an object lesson to the whole community to prove the value and necessity of fresh air and good food for not only the cure, but prevention of disease."

But the feature of crowning value to a commonwealth of such an institution is thus referred to by the physicians mentioned: "From experience in other institutions, it has been most gratifying to find that the patients, after leaving, not only continue to practice the rules laid down for themselves, but teach them to their families and friends." And further the "results show most conclusively that the experiment of providing State care for consumptives by the establishment of Sanatoria is an undoubted success" * * * . And that "the chief value of such an institution * * * is its educational influence upon the community at large. Abundant and gratifying evidences of this are constantly being shown to us by the numerous letters received from former patients, telling us of their improved methods of life, and of their endeavor to teach their relatives and friends the importance of fresh air, good food and regular living as the best method for the prevention of disease."

In the judgment of the writer the weight and importance of the fact contained in these statements cannot be overestimated in reaching a conclusion as to the necessity and value

to a State of such an institution. While the advantage to the individual patient in the restoration of wage-earning capacity and self-supporting power is undoubted and personally inestimable, still from the view point of the general public this benefit is overshadowed by the immense gain to the commonweal secured in having a small army of zealous apostles preaching a propaganda of prevention and "illustrating this gospel in their own persons and lives, for such teachings go directly and precisely to the very places otherwise so difficult to reach, and where they are most needed, namely, the workshops, factories, mills, mines, tenements, in short wherever human beings are most densely congregated there will these wholesome instructions and salutary admonitions be heard and heeded most; and the State, from enlightened sanitary considerations alone, could well afford to devote a large sum annually to further and secure such an effective propaganda of elementary public health doctrine among its people, and which can be attained so effectually in no other possible manner. In fact to the writer it furnishes the key to the tuberculosis situation as it confronts sanitarians in dealing with large bodies of people as they are found massed together, both domestically and industrially, in the municipalities.

The population of Missouri by the census of 1900 was 3,106,665, abut one-third of which total (1,039,861) are residents of the twenty-five cities each having 5,000 or more inhabitants. The known constant general death-rate in the United States year by year from tuberculosis is about twelve per cent (12%) of the total mortality, the corresponding municipal or urban rate being about fifteen per cent (15%) and as there are probably about 40,000 deaths occurring annually in this State it follows that not less than 4,500 of these deaths are due to tuberculosis in all its forms; while for every such death there are probably ten persons ill with the malady in its more or less advanced stages, most of whom acquired it through ignorance on their own part, or on the part of those

in whose care they were, of the manner and means by which it is spread, and a majority of whom would undoubtedly respond favoraby to sanatorium care and instruction if afforded the oppotunity.

The value of each human life in Missouri is by law capitalized at five thousand (5,000) dollars, and an elementary knowledge of figures suffices to show the present vital sacrifice from this one cause not to speak of the economic drain produced by the months of illness usually experienced in each case so that the question for this commonwealth to answer is whether this enormous sacrifice and drain shall continue practically unchecked when the convincing demonstration has been made elsewhere that prevention and cure are quite possible, both having in view the ultimate dislodgment of this pandemic from its present leading place in the morbidity and mortality records.

The topography of this State presents localities where elevations of 1,500 feet or more are available as sites with air, water, scenery, etc., admirably suited to the purposes herein set forth.

In a financial sense the time is propitious for this humane undertaking, the State debt having been almost extinguished, while in affluence, thrift and population her condition was never more promising.

Furthermore, the moment is opportune and auspicious for the presentation of this subject inasmuch as Missouri has in the person of her chief executive a gentleman of medical education and professional experience united with and re-enforced by business acumen and political sagacity of high order, all of which qualifications especially fit him to approach this important question with confidence, and to deal with it in the most intelligent and capable manner in its relation to the general welfare and sanitary safety of all the people of the State. Therefore shall not the medical profession, ever conspicuous for humane enterprise and unselfish zeal take advantage of this opportunity and in practical fashion during the present year

bring this matter home to every one of those gentlemen who will compose the General Assembly so that when that body convenes next winter the educational foundation of preliminary sound information will have already been laid in their minds and legislative discussion and deliberation will then turn simply on the ways and means, the right business methods, for the proper accomplishment of this object.

ADDENDUM.

FINANCIAL SUPPORT OF THE MASSACHUSETTS STATE SANATORIUM.

1895 —	$150,000.	Appropriation to establish institution.
1898 —	20,000.	" for current expenses.
	22,500.	To provide for completing the institution.
1899 —	40,000.	Appropriation for maintenance.
	6,485.98	Deficiency incurred in equipping.
	6,000.	Furnishing, etc.
1900 —	60,000.	For maintenance.
	12,000.	Deficiency incurred in current expenses.
	23,000.	Additions and necessary improvements.
1901 —	60,000.	For maintenance.
	110,000.	Appropriation for new buildings.

Payment at the rate of $3.50 per weeek by each patient is required.

NEW YORK STATE HOSPITAL FOR THE TREATMENT OF INCIPIENT PULMONARY TUBERCULOSIS.

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THE ACTIVE PRINCIPLE OF QUACKERY.

By Frank G. Nifong, St. Louis.

Mr. President and Gentlemen:

Our meager medical histories and mythology tell us but poorly of the origin and development of medical science.

Taking only a cursory view we must, of course, begin with the mythical Aesculapius — our sprightly journalists are fond of calling us "disciples of Aesculapius" after this mythical father of medicine. We must admit, too, that even in the bright dawn of this twentieth century, we cling fondly to some delusions and superstitions quite as old as this father of medicine. The father of medicine, or perhaps we should say, grandfather, as Hippocrates was the real progenitor, if he were living to-day, would, no doubt, be conducting an "institute" or college of some "pathy" with a sanitarium annex. If he were sufficiently imbued with the commercial spirit of the age, he would also have a method of "absent treatment" and give employment to numerous clerks and typewriter girls. He appears to have been the first grand-master in the art of manipulating the mystic, and among all the multitude of successful masters, there have been few or perhaps none, more successful in the use of the most potent therapeutic measure we possess, viz., mental suggestion. We boast of much enlightenment, in these good days, in all the arts and sciences, and we medical men are proud that our science has kept well abreast in the advancement. We can point with pride and pleasure to the achievements of medical science during the last century, and we need not be chagrined when we look back still further over the dark ages

of ignorance and superstition and see the abominations practiced in the name of our art. We can say truly that the practice at all times has been what the state of society made it.

Then let us look backward and learn one single, simple fact. I fancy we will not have to look far to account for many of the medical vagaries of enlightened people to-day. The atavistic tendencies of the human race will explain them all. The history of medicine among all peoples has been much the same, and we no doubt obtain a good idea of how primitive man treated disease, by a study of the methods of our modern savages. The world to the savage is peopled with innumerable spirits, mostly evil, who must be propitiated. Then is injury and sickness to him the effects of their displeasure and recovery is dependent on his ability to appease the wrath of the offended spirit. The medicine man then finds his occupation. He becomes the mediator. He is the logical result of paganism and superstition, the original "quack." The American Indian peoples all nature with spirits. Disease and injury are to him obscessions. The cure was to result by ridding him of the evil spirit. Polytheism is the natural religion; the religion without other revelation than that which nature makes to the primitive mind. All good and evil was given by the gods. So disease first came to be cured by appealing to the gods and from that time through all the ages has been handed down to us the ancient fallacy, "post hoc, propter hoc." The "vis medicatrix naturae" did the work, and the gods were given the credit and the offerings. And so old Aesculapius in the ancient times made powerful suggestions to the minds of the sick, got good results, and gained much confidence in his methods. His Homeric sons, Podalirius and Machaon, were likewise potent quacks. His disciples promptly deified him, as they were accustomed to do their heroes, and established temples and proper worship — the sick were brought to the temples and given a very commendable treatment of hydrotherapy. They

were taken in charge by the priests, who forthwith began to recount the marvelous cures performed.

The votive tablets testified to the fact that others of like and worse conditions were marvelously cured. They fasted and slept in the temples and had their minds highly excited by the mystic ceremonies they beheld, and finally, they had only to receive the oracle when it was finished. Thus was ancient man cured of his disease by suggestion. All that excited the imagination and all that appealed to native superstition was used to put the mind in the most receptive mood and make the suggestion most powerful. And so the priest was the physician; the one who made intercession with the offended deities who caused the disease. Thus you see that in this pagan partial civilization, the treatment of disease was much the same as that of the savages, indissoluble with their religion and priestcraft. About the only difference was that they washed and dieted themselves. The Egyptians likewise had gods such as Isis and Apis, who through their priests had the business of curing disease. These priests practiced in much the same manner as the Greeks, with mystic suggestive ceremonies, sacrifices, ablutions and strict dieting. The most commendable thing, with both Greeks and Egyptians, was their practice of dieting and bathing, and constituted the essential difference between their practice and that of savages. The Druids in Briton and Gaul were the priests who practiced suggestive therapeutics on the Celts, using similar methods to those used in all priest-ridden pagan countries. And with the Israelites, the Levites or priests were the practitioners of medicine, prescribing the ceremonies that were to be performed to rid the people of disease. Disease to them also was supposed to be the possession of evil spirits that must be driven out. The Jews, so impregnated with idolatry, and so isolated as the chosen people of God, made much less progress than they should have done. They were so steeped in superstition and ignorance, however, that the arts and science were not cultivated to any extent until the time of King

Solomon, who invited the assistance of sister nations in building the temple. Tradition has it that Solomon invented a system of rational medicine, to the discomfiture of the priests. Subsequent history does not verifiy the tradition, however, for the people quickly lapsed into their superstitions and idolatrous customs as they were wont to do. About 450 years before the Christian era, lived the father of medicine, Hippocrates, the sage of Cos, "the divine old man." He it was who gave to the world the first rational practice of medicine and the first rules of medical ethics. How marvelous was his wisdom when we consider the age in which he lived. His medical philosophy and his ethics are just as true and sound to-day as ever. If we do not deviate from the useful rules and maxims which he laid down, we cannot go far astray. One of his axioms was "Nature is the first of physicians" — an axiom that should be more thoroughly grounded with the profession to-day. It is wonderful to contemplate how Hippocrates, a priest of Aesculapius, could have rid himself to such a degree of inherited superstitions and practices and invented a practice so rational if not always so scientific in the light of to-day. How little true medical knowledge emanated from any other source than Hippocrates for centuries! It is not the purpose of this little paper to even introduce to you a history of medicine but simply call your attention to some facts already well known to most of you and perhaps we may make a deduction that cannot be well controverted. It is the history of nations, as well as individuals, that, in their development, there is a constant retrograde tendency.

For instance, witness the frequent lapses of the Hebrews into idolatry. We are all more or less tinctured with superstition — often we are unconscious of it. Ideas are handed down from remote generations — folk lore is similar in all countries and superstitious practices are transmitted from primitive people much the same, being modified only by environment. How many here can truthfully say, after thor-

ough introspection, that they have absolutely no superstitions? How many of you would not be deeply affected even now by a mystic ceremony of grandeur? All of you who have been surrounded in your childhood by the negroes have absorbed superstition that you cannot quite overcome, notwithstanding you know they are false. The mystic and unknown will always appeal to the human mind until all things are revealed. How natural it was and it is now to associate the mysteries of life and death with religion. The deranged life function the pagan ascribed to an offended deity; the Christian, now often overlooking the laws of nature revealed to him, calls it an "error," sin, etc. How marked are atavistic tendencies often in the most enlightened and intelligent — people most sane in the ordinary affairs of life and people most intelligent in everything else show marked primitiveness when it comes to their human bodies. What is mystery to them must be antagonized by the mystic. Amulets, charms and fetichic emblems of various descriptions, you have all seen them and heard stories of their wonderful curative and prophylactic properties. Perhaps some of you enlightened physicians could at this moment plead guilty to carrying a charm or fetich such as a rabbit foot or buckeye. The charlatan's best instruments are those things that appeal to the mystic and superstitious tendencies of the mind. He may take the religious tack and become a Schlatter, a Dowie or an Eddy, or if not wishing to wear a robe of sanctity he becomes a hypnotist, a magnetic healer, or exploits the power of electricity. He may believe it himself or not, but I think his suggestions are made best when he himself is deluded and actually believes he is "it." If Hudson's theory of the dual mind is correct, his suggestions are best made when he believes in himself. I have merely indicated how disease can be cured in all ages by the laws of nature and faith; faith in something or anything, whatever would impress the mind most forcibly, any method that would make the suggestion strong enough. Let me call your attention to a few examples of

wholesale suggestive therapeutics before I conclude. In the town of Lourdes, France, in the year 1858, a certain little peasant girl, Bernadette Soubirous by name, about fourteen years of age, while wandering in the fields near the town with other children, went into a trance or religious ecstasy before a grotto. After the trance she announced that she had seen and talked to a beautiful woman. This ecstasy was repeated on successive days to the great wonder and excitement of the simple religious folk of the country. The apparition, who later announced herself to the child as the Virgin Mary, commanded that a chapel should be built on the ground. A miraculous spring of water came from the grotto after the apparition had commanded the little girl to dig for it with her hands. The excitement of the people increased progressively as they beheld the little girl in her trances and heard her recitations of her vision. The next sequence was a trial of the spring water by a certain Louis Bouriette, who had dimness of vision resulting from injury from a blast some years before. He was miraculously cured by bathing his eye with the water and appealing to the Virgin. So the excitement continued, and others were cured of divers troubles. Cures multiplied as the excitement increased. The shrine was established and sanctioned by the Church, and a host of the authentic cures are recorded. Pilgrimages became popular, and are still in vogue, I believe.

This is a fair example, no doubt, of the suggestive influence of religious shrines, and there have been numerous shrines and relics reputed to cure disease.

In the time of Edward the Confessor, a young noblewoman dreamed that if the king would wash the swelling on her neck she would be cured. The king was gracious enough to do so, and, while washing it with warm water, the abscess ruptured and drained with speedy recovery. "Post Hoc, propter Hoc." The king had cured with his divine touch, and in one year he had "touched" more than 8000 for the king's evil, with cures innumerable. If not cured, no one

had the hardihood to say so, for "one person was convicted and executed for high treason for speaking contemptuously of this new divine power of this pious English king." After this time, both French and English kings arrogated to themselves the "divine touch" as well as the "divine right" and cured thousands by so simple a method. This delusion lasted for centuries, for Dr. Johnson was touched for king's evil when a child in 1784.

A certain Elisha Perkins, of Norwich, Connecticut in 1796, invented some metallic tractors or "pullers out of disease." This was the time when Dr. Franklin, Galvani and others were discovering some of the wonders of electricity, and the mysticism of it appealed strongly to the whole world. Perkins made a tractor consisting of two little pieces of pointed metal, one of brass and the other of polished steel, and he announced that they were of great intrinsic value and of wonderful virtue in curing disease. They were placed together and were supposed to generate electricity by contact and were powerful enough to extract disease from the body by drawing the points over the affected parts.

Perkins operated successively in the United States, and is said to have gained the indorsement of several medical faculties. He went to London for a larger and more profitable field, established an institute and published a report of five thousand cures, "many of them of the most positive and unquestioned character." The lower animals were cured to prove that it was not faith cure.

Drs. Haygarth and Falconer made tractors of wood and painted them to resemble the Perkins' tractor. They likewise cured numerous persons and obtained their written testimony. They published a volume of recorded cures with the fictitious instruments, after which the suggestion had no further power and Perkins had to seek new fields. He invented a new antiseptic for fevers and returned to New York, and died of yellow fever, very shortly, because his antiseptic did not work. I have brought to your notice these few

examples of the effects of suggestion in curing disease; they might be multiplied indefinitely. Look about you to-day and see my parallel cases in Boston, Chicago, Nevada, Missouri, here and there they flourish with no other active therapeutic principle than the power of the mind over the body. Suggestion is the only truth in quackery and the only virtue it possesses, but a potent one, we must admit. Make the suggestion and let nature, "the first physician," alone and we may take the credit for nature's work. By this I would not have you infer that I myself am a therapeutic agnostic. I believe in the rational medicine of Hippocrates and the scientific medicine of to-day. I believe in what I see demonstrated; the action of digitalis, opium, antitoxine and other potent remedies. I believe we have remedies to assist nature in influencing cell action, and metabolism, resisting toxines, etc.

I believe, too, that in making the proper suggestion to the mind, we use one of the best adjuvants of nature in curing disease. I believe we may by this means increase resistance to disease, influence the cell action and even materially affect for betterment serious organic troubles. If strychnia and digitalis are stimulants to a failing heart in pneumonia, so is a suggestion inspiring confident hope in recovery. We want hopeful patients to undergo surgical operations and not the pessimistic. Confidence, hopefulness, and determination to recover will help resist infection and he is the best physician who uses with his scientific knowledge what might be called intuitive common sense. We see among our confreres men most successful in curing disease, who have little scientific knowledge, but possess sympathetic natures inspiring confidence in them, and cheerful hopefulness and optimism that constantly suggests recovery to the patient — I am convinced that many of us neglect mental suggestion as a practical therapeutic agent, perhaps because we despise the method of quackery so sincerely, and again, from the lack of knowledge as to its value and the part it plays in the treatment of

every case — a factor in every case, I assure you, even though we are unconscious of it. The function of this little paper is simply to try to accentuate this fact, which is established in the minds of us all; to encourage the legitimate and more extended use of a therapeutic measure as ancient as time and yielding precedence in potency only to nature herself.

COLLATERAL READING.

Dunglison, History of Medicine.
Peters, History of Ancient Pharmacy.
British Encyclopedia Medicine.
J. C. Peters, Reference Handbook of Med. Sciences.
Hudson, Laws of Psychic Phenomena.
Our Lady of Lourdes — Henri Lassere.
Folklore, Owens.

SEXUAL NEURASTHENIA IN THE MALE.

W. T. ELAM, M. D., ST. JOSEPH.

My reason for bringing to your notice the above subject, is the hope that the discussion elicited may be the means of directing your attention to certain pronounced forms of neurasthenia of sexual origin, some of which, though apparently disassociated from the sexual apparatus, either in a functional, symptomatic or causative way, as time goes on, usually develop into the more distinct variety.

Sexual neurasthenia differs from the other forms in that it has for its origin or maintenance, some morbid condition, either congenital or acquired, of the genital tract. In some cases the patient is aware of this connection; in others he is not cognizant of any abnormal condition in the parts. Again, sexual neurasthenia gives rise to the greatest diversity of symptoms, all of which, as a rule, are more or less decidedly pronounced, and none of which can be materially benefited until the existing morbid condition is eradicated. In truth, many times the connection remains unnoticed, even by the physician — the neurasthenic symptoms disappearing during or after a proper course of treatment.

It is possible to conceive a condition of the nerve centers, hereditary or following debilitating conditions, which might admit of sudden shock, anxiety, worry, disappointment, overwork, deprivation or excesses of various kinds, producing nerve exhaustion. While we are willing to admit such predisposition in the generality of cases, yet it seems to us when the rich vascular and nervous connection (central and sympathetic) together with the importance of the sexual function, are considered, it requires no great mental effort to adequately

appreciate the systemic disturbances which a lesion of the genital tract may produce. It should be noted that some of the prominent writers of to-day are seeking, and we think rightly so, to place this form of neurasthenia upon a purely histopathological, instead of psychopathological, basis, or an indefinite combination of the two.

Neurasthenia is looked upon as a chronic functional nervous disorder, in which there is pronounced weakness and irritability of the centers, causing the patient to become excessively fatigued from slight or physical exertion, and to respond immoderately to slight irritation or stimuli with proportionate inability to generate and restore energy. Comprehension of this definition permits us to appreciate the multiplicity and freakishness of the symptoms possible in connection with the more or less regular phenomena referable to the functional activity of certain organs. Accordingly as these symptoms seem to originate or affect the head, spinal cord, stomach or generative apparatus, they are spoken of as cerebral, spinal, gastric or sexual neurasthenia. The fact that all of the reflex centers are involved accounts for the apparent overlapping of symptoms. That the patient should consider his trouble as originating in or affecting certain organs, especially when his attention has been directed by suggestion to these points, is no good reason why such is actually the case. It not infrequently happens that an examination of the genitals where negative results are found, and when such results are not communicated to the patient, is sufficient to turn his mind into this dangerous groove. Again, it is not unusual to have a patient complain principally of stomachic symptoms, and upon examination reveal some prostatic, vesicular or urethral lesion, the correction of which admits of a cure.

In the etiology of this affection due prominence has been given to diseases of the prostate, viscula seminales, spermatic cord, testes, and last, but by no means least, as clinical experience has proven, the urethra.

Pathological changes in the prostate have heretofore been

assigned the principal rôle in the causation factors. Late writers and clinicians are disposed to urethral changes,—stricture, granular or excoriated areas, as being of equal, if not of prime importance.

While it is possible to be more or less positive in regard to the primary pathological causes of this form of neurasthenia, it remains, in my opinion, for the future developments of the cell pathologists to bring out the resultant structural changes in the nervous system, central and peripheral. At present, as pointed out by Hodge, the best conception of this disorder is to liken the changes in the motor cells to that which is incident upon natural fatigue. Add to this extremely exhausted condition (in your mind's eye), the inability to recuperate and restore potential energy, even after prolonged rest, and you have the condition as we understand it.

The symptoms of the general neurasthenic state must necessarily be included in the consideration of the sexual form, as even the more or less constant and characteristic symptoms of this variety many times accompany neurasthenia from other causes. The most important and constant features may be enumerated as follows: gastrointestinal atony, neuromuscular weakness, cerebral depression, headache, backache, sexual irritability or weakness, mental depression and insomnia. In addition to these there may be almost innumerable objective and subjective symptoms. These usually vary in different cases, and not infreqently in the same case. Their importance entitles them to review.

The patient complains of general muscular weakness, shown by the ready fatigue upon exertion. Continuous effort is impossible, though the patient may exert an ordinary amount of strength for a few, or an occasional effort, after which he is left weak and trembling. The tendon reflexes (knee-jerk especially) are at first intensified, but usually become less and less marked, on account of the ready exhaustion of the reflex arc. He explains the tired feeling,

and in connection with this, there is a lack of ambition. He fails to take interest in his own affairs, and shuns anything which appears to demand application, firmness or decision on his part. He seeks advice and communicates information upon matters in which he was formerly wont to take the initiative, or keep his own counsel. He is irritable, has headache, backache, napeache and vague indefinite pains at different points. The headache may be occipital, frontal, temporal, vertigal, or may seem to be produced by a constricting band (lead cap headache). The spine may be tender throughout its entire length, or there may be local points of tenderness, situated in the region of the occiput, seventh cervical or lumbar vertebra, lower angle of scapula, waist, lower segments of sacrum or coccyx. He complains of indefinite sensations of heat, cold, prickling, numbness and stiffness. His memory becomes clouded, poor, and shows decided irritable weakness. He becomes apprehensive, suspicious of himself, entertains fears of losing his mind or becoming insane. There is a morbid habit of self-examination, and a disposition to magnify unimportant minute details or symptoms. Delusions are frequent, confidence and affection for family and friends is affected, and he becomes peevishly exacting. Insomnia is a prominent and early symptom. In many instances it is the first, and not infrequently it exists for some time prior to the development of the general state. Sleep, when it does come, is attended with unpleasant, exciting and worrying dreams or nightmare, and the patient as a rule, awakes irritable, despondent and unrefreshed. He complains of palpitation, tumultuous or throbbing heart action, many times attended by precordial pain and varo-motor storms, following or accompanying slight mental or physical efforts. The pulse tension is usually low and ranges from 100 to 140 beats per minute, varying promptly with any disturbance of a mental or physical nature. The secretions are ordinarily diminished; though under stress of excitement, the urine may be alkaline, and

the quantity markedly increased. Disorders of the special senses are the rule: — those of sight, smell and hearing being the most noticeable. The appetite as a rule is indifferent and capricious. Digestion is usually retarded and incomplete, producing gaseous eructations, borborygmi, gastric distension and dilatation. HCl. is usually deficient and may be entirely absent. The sexual function is irritable and weak, desire for intercourse being, as a rule, diminished, the act unsatisfactory, each intercourse generally followed by a distinctly noticeable aggravation of symptoms. In those cases where the desire is unabated, the pleasure is diminished and orgasm usually premature. Over-indulgence is not infrequently followed by involuntary or nocturnal emissions. The glans feel damp and cold, the scrotum and perineum usually moist and hot, with scrotal, perineal and anal itching. There may be pin-point pains occasionally along the urethra, occasional neurotic or congestive pains in cord, testes or prostate.

In cases where the mind of the patient has been directed to the genital apparatus, there is a haunting fear of approaching impotence, and not infrequently an actual psychical impotence is present. There is an impression that some early abuses or unnatural practices have been the cause of their condition, and they become imbued with the idea that their appearance and manner betray their condition, and necessarily the cause. This produces a morbid desire to avoid gatherings or public places where they are likely to be thrown into a state of agitation resulting from scrutiny.

Few cases perhaps will present all of the phenomena here enumerated, though it is not impossible to find cases presenting at various times during the course of this ailment, if not all, the great majority of symptoms here described.

Treatment. Upon the treatment depends the final test as to whether the neurasthenic state is due to genital lesions or perchance the genital lesions are due to the neurasthenic state.

The treatment resolves itself into two propositions: — first, the removal of the cause; and second the correction of the resultant effects upon the nervous apparatus. It is not infrequently the case, where the condition is mild and not of long standing, and the physical condition of the patient fair, that the correction of the local lesions, removing as it does the irritation, results in a cure. Those cases, however, that present profound symptoms and have passed over an extended period of time, require that the treatment of the systemic condition be instituted immediately after, or, better still, during the treatment of the local lesions.

The local treatment consists in dividing and stretching strictures with irrigations from time to time, topical applications through the endoscope to infiltrated granular and excoriated areas, deep instillations, prostatectomy, vasectomy, prostatotomy (Bottini) circumcision and dissecting up adherent foreskin, etc.

The constitutional treatment consists in regulation of diet, bathing, exercise, etc. In connection with this, tonics and tonic laxatives. Electricity and massage also deserve to be given a prominent place. Alcohol and tobacco should be interdicted.

Rock Island Building, St. Joseph, Mo.

TAKING COLD A MISNOMER.

By T. F. Lockwood, M. D., Butler, Mo.

Mr. President and Fellows of the Association:

This term is ancient in origin and should be modern in significance. There is not a phrase so common in all the English language pertaining to the ills of mankind as the term "taking cold" and none are less understood by the general public than this phenomenon. This expression is not confined to the laity alone, however, for physicians are equally guilty of the same breach of science. Diseases and their pathological causes are taught in our many text-books of to-day and by our college professors as well, but there are so many little things, seemingly of minor importance, overlooked by them, that it behooves us as thinking men to investigate such matters as those that present themselves in our every-day experience. Questions of greater magnitude do not lack for scientific agitators. It seems that men are prone to shuffle, cut and deal for a full hand by which they may win fame over all others, and, in so doing, are apt to discard such little insignificant maladies as that of "taking cold," etc.

It is not my purpose to deal scientifically with this question, for I could not did I try. But it is my aim to point out a common error current in our ranks, trusting to be enlightened by subsequent discussion for my reward. Physicians hold up this progeny of ignorance between them and their patients to cover up a multitude of sinful errors and the public at large are excusably doing likewise. The laity do not and can not, from their crude knowledge of pathology, place the blame other than to taking cold for their many aches and ills. Pneumonia, bronchitis and all like ailments are attributed to

taking cold. Increased intensity in all local inflammations are said to be due to cold. How often have you had patients say: "I have taken cold, or I am afraid I will take cold in the wound, hence this abundance of bandage to keep it warm;" especially does this occur in cases of sore feet, fingers and hands. How absurd is all this! And yet we have allowed our patients to grope in darkness pertaining to the real cause: we have never sought to enlighten them, either from carelessness or from base ignorance on our part. It is indeed common to see patients whose faces are swollen from a defective tooth who attribute it to taking cold, when in fact it is due to septic absorption from an abscess or degenerated nerve pulp. How many times have you said to your surgical patients: "Be careful, and do not get cold in the wound?" How many times have you been guilty of accusing your parturent patients of getting up too soon and taking cold as being responsible for their puerperal state when in fact sepsis was the main factor in the case? It is true that such excuses may save the reputation of a thoughtless and careless physician, but if he be allowed to persist in such nefarious practice he will inevitably swell the ranks of the great majority. It is a waste of energy to surmise a woman lying in bed, cautiously covered with the usual spread, and with extraordinary attention given her in a way of comfort, taking cold. But on the other hand: how easy it would be to conceive the painful probability of a woman who has been nursed through her nine months of gestation, taking but little exercise, living like a sprout in a cellar, as it were, with her powers of resistance weakened, as well as a lowered vitality from the demands made on her system for the maintenance of a new being, placed at the mercies of a foul-handed physician, with his dirty death-dealing instruments, swarming with millions of microbes celebrating the golden opportunity to pounce upon this helpless, pitiful, innocent being. In the natural flow that follows, labor furnishes fancy food for germ life, a rare menu relished by the numerous varieties of mi-

crobes, a fit feast to tempt the old king bug himself. Therefore it does not take a Koch with his powerful microscope to prove to us that it is infection instead of taking cold. It is taking dirt or infection and not cold, as some would have us believe.

Cold is germicidal. It is aseptic in a measure, and why it should be so falsely applied I cannot see. Cold is used to preserve dead bodies, to prevent putrefaction, and nature herself has appropiated it to purify the air we breathe. Hot musty poultices, and warm, stale applications to sores and all flesh wounds generate more germs and fungi than an ice poultice could possible create. The individual who wraps his sore foot or hand with yards of dirty, greasy rags to prevent taking cold in the wound, as he puts it, only builds a harbor and hotbed for germ generation. Better turn out the wound to light and air, without any protection whatever, and let nature heal with her balmy process rather than hinder her efforts with the treatment above referred to. Exposure to cold is but an exciting cause for a few ailments nonspecific in their nature. The wide list of complaints claiming cold as the great causalty, are not at all due to the same, but for a better name we are pleased to call it thus.

How many times in life have we in the capacity of country doctors, had our bodies chilled till our teeth would chatter, facing wintry storms in all their fearful fury, both day and night, and yet we never felt the least inconvenienced from it? Again, we have been exposed to warmer weather, or at least what we would class more favorable, and we would begin to sneeze, our head would stuff up, and would contract what is termed a cold. I cannot think cold had anything to do with it. There is a cause foreign to taking cold. I believe it all due to microbic origin or influences and the air is but a medium of transportation.

Pneumonia and bronchial troubles are quite prevalent at the breaking up of winter when the thaw-outs come; certain species of germs make their flight during such favorable

seasons, and the reason we may be exposed one day to germ influences without effect, and then be stricken on another time with like environments, also why one person may be attacked and not another, I can not help believing that all germs travel in companies or schools, and when we cross their line of march they at once call a halt, form a line and prepare for battle, concentrating their forces upon the unconscious and unfortunate offender.

Spinal meningitis is said by numerous authors to be due to exposure to cold. I believe the main factor in the cause is microbic. We have several forms of the disease produced by as many causes, and yet all are specific in their nature. Syphilis, tuberculosis, pneumococcus and the germs of la grippe and typhoid fever have been found to be an exciting cause in many cases, showing conclusively that cold was a remote cause, if it had anything to do with it. I cannot call to mind a single derangement of any character that ever occurred or resulted from exposure to severe cold. Many of us have frozen our auriclar appendages till they would rattle like wooden ears and would experience no evil effect except the natural outcome of a freeze. Many people have lain out all night, freezing their feet and hands, necessitating amputation, and would never develop a cough or other signs of having taken cold. Those that have been resuscitated from freezing or from long exposure to cold, have never suffered the symptoms ordinarily classed as colds; it is true, however, they suffer a severe shock or impression made on the nervous system, but they do not develop pneumonia or bronchitis unless it be incidental. Exposure to cold might so blunt the action of the nervous system as to lessen the resisting powers of an individual, thereby rendering him a fit subject for germ invasion, but nothing more. When vitality is at a low ebb, from any cause, let it be from overwork, overindulgence in eating, or let it be from exposure to cold, enfeebling the general circulation and the nervous system as well, both general and sympathetic,

bodies become susceptible to germ destruction. Active life at its utmost, widens the span between composition and death or decay. When the system is in perfect working order, it then marks the highest type of human life, but any deviation from this score approaches nearer death, in a degree marked by the influences brought to bear, losing the aseptic and antiseptic forces found in life itself. The point which I wish to make is better illustrated in the two opposing forces, life and death. It is a problem of much interest to know what prevents decay in all living substances, when in a few hours after death we observe decomposition setting in. In the natural functions of life, nature has provided antiseptics to preserve the tissues of the body. Chloride of sodium being the best, is found in abundance throughout the animal mechanism. It is found in the blood, in the secretions in all the fluids of the body, and extremely so in perspiration which bathes the surface so thoroughly. Antiseptic salts permeate the living tissue, thereby keeping it in a state of preservation, but when death comes nature recedes from the scene, withdrawing her forces, the blood withholds its antiseptic salts, the manufacturing process of saline solutions are shut down, consequently the germs play producing rapid decay without any resistance whatever.

With this question settled, I trust in the affirmative, I will ask: why do many claim to contract cold when sitting or sleeping in a draught when, if they were in the open air, would have no effect on them? I can only answer that by way of speculation. Through an open door or window, air forms a current, a miniature whirlwind, as it were, drawing into its path a colony of passing germs, pouring them in upon the victim, like being directed through a funnel; and again, while sleeping, animation is partially suspended, we are practically dead to all external influences, the circulation is slowed, the leucocytes have retired for rest, consequently the field is open for germ intrusion, and it is these invited guests spending their forces upon the mucous membranes of the air

passages and not the effect of cold so universally believed to-day. Inhalation of cold air will not of itself produce pathological changes along its route. The nose is not to warm the air we breathe so much as it is to filter and abstract all foreign matter, entangling the microbes with the thick and tenacious secretion nature has provided for this purpose.

Had we some way of sterilizing the atmosphere we breathe, we might sleep with the funnel-end of a tornado in our mouths with perfect impunity as far as draught is concerned. It is the moist night air, with her myriads of nocturnal prowlers that seek darkness rather than light to do their murderous mission, and the foulest of the filthiest germs are to be found lurking under the shades of night and it is no wonder we take cold (toxicoses) while sleeping in a draught. Sunlight and heat, and dry atmosphere of the day, destroy the lives of many germs, but after the sun hides her face behind the western horizon, and the dew begins to fall, moistening the air, then it is that all germ life takes on new vigor to fit them for the coming nightly raid; creeping vermin come forth seeking what they may devour; fungi about the barn lot, and the mushroom in the lowlands spring up in great activity along with their kindred kind; the mosquito, with his patent injector, is out in full force with an abundance of malarial plasmodium, infusing into the system of mankind the essence of cold, not direct from the frigid zone, but from the marshes, in the way of an old-fashioned ague. So the same is true in all micrology. People fear dark, damp houses; they have by experience realized that all who inhabit such quarters are subject to influences called colds. It is the dingy surroundings that propagate germ life and maintain the same, monster cold having nothing to do with it.

How many have in life been suddenly exposed to cold plunges, like falling into icy water, and yet never suffered a symptom called cold? How many people refrain from getting their feet wet for fear of a cold? How many of us who

would take a cold foot bath to-night would experience any ill effect from it? Ordinarily people walk about with their feet at a temperature equal to a cold bath. I have watched with interest the little boys of my town in springtime, when they throw away their shoes for the summer and eagerly wade out in the dewy mornings with their little feet white and tender as a babe's and not one of them to my knowledge ever had a cold from it. When I was a small boy, with other companions, many times have I bared my feet and plunged out in the deep snow, making trips about the yard, returning my shoes to a pair of reddened and highly vasculated pedals without the slightest effect from it. I saw a schoolmate remove his shoes and tramp for thirty minutes in the snow without a sympton of so-called cold. Would not these sudden changes of temperature counteract my theory were there such a thing as "taking cold?"

How often do we hear women say they got their feet wet and suppressed their menses when at that very moment, had we an opportunity to test it, find them with feet as cold as a dead snake, only to be warmed after retiring at the back of a kind and compromising husband. What can there be in cold applied to the feet to suppress the menstrual flow? Why not the hands and face, being exposed at all times, have the same effect? Women wash their face and hands in cold water and never surmise a cold. We have all witnessed the outcome of these colds, — they usually thaw out in about nine months.

So termed "taking cold," with its congestive and microbic influences upon the system, creating a morbid tergescency of the circulation, will tend to produce the menstrual flow rather than hinder it; but the misled and unfortunates have heard this old maxim for years, hence, they bring it to the physician and lay it at the feet of the originator and advocator, imploring him to remove the cold, restoring them to grace, health and happiness. Many poor tuberculous girls have mourned their past lives for some imaginary indiscreet act as

being responsible for a premature death they see inevitably approaching.

They have been wrongfully and shamefully informed. The cessation of the menses is not the cause of their having consumption, but it was tuberculous germs preying upon their system, consuming the life-blood, hence they had not the sanguine fluid to indicate a flow or to mark their strength and perpetuity longer, and must necessarily yield to the inevitable.

With an opinion based upon these facts as I see them, I can not but say, in a brief way, the term "taking cold" is a misnomer.

REPORT OF THE COMMITTEE ON NECROLOGY.

Dr. E. A. Gore was born in Bullit County, Kentucky, October 8th, 1823, and died at Paris, Monroe County, Missouri, March 28th, 1901.

Dr. Gore came to Missouri with his father in 1833. He was educated at Masonic College, Monroe County, Missouri. He received his medical education at the University of Louisville, Ky., graduating M. D. in 1848. In 1850 he was married to Miss Margaret Clark, of Monroe County, Mo. He was one of the organizers of the old N. E. Mo. Medical Association, and one of its first presidents. He was President of the Missouri State Medical Association in 1882. Dr. Gore was a great friend of education. Notwithstanding the exacting duties of an active practice he accepted the office of School Commissioner of Monroe County, which office he filled with distinguished ability. He did more to inspire the young men in Monroe County with a desire for an education than any man of his time. He was a friend to the young practitioner and an inspiration to him to do honor to the profession. He practiced medicine at Paris, Monroe County, more than fifty years. Three children survive him, — Dr. D. C. Gore, of Marshall, Mo., Ellis D. Gore, a lawyer at Paris, Mo., and Miss Margaret Gore, one of the faculty at Wm. Woods College, Fulton, Mo.

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